

## RUMORS MONGERED HERE

by Jim C. Warren, Jr.

The southern end of the San Francisco Peninsula is known as Silicon Valley (or 'Silicon Gulch' to elektronikers with left-handed tongues), although unworldly geographers continue to naively call it the Santa Clara Valley.

Though hot and dry most of the year, it leaks like a Nixonian White House. That is, rather than leaking water — which is scarce — it leaks rumors and technical tidbits . . . in a manner that strikes terror in the hearts of patent attorneys, and brings joy to the hearts of industrial spies and computer junkies.

The fact that the Truth Value of these rumors turns a Boolean universe into a continuum with only one extremity being 'True' in no way detracts from their entertainment value. Thus, we herewith dribble out to you, gentle readers, the more interesting of the rumors . . . offered as comic relief for our fellow technonuts, perhaps occasionally tainted by truth.

[And, we must admit to some degree of desk-thumping frustration — for we do honor the requests of our sources who feed us most tasty morsels, but ask that the information remain 'off the record'. For, after all, were we to fail to maintain confidentiality when requested, then our rumor wells would shrink to a trickle and then we wouldn't know what's going on.]

### Gargoyles for Micros

One of the hottest tidbits of hard news (appearing in print for the first time, right hyar) is that a real PL/I compiler is now available for micros. Gary Kildall's Digital Research — that's the crowd that gave you the default-standard CP/M floppy disc operating system, folks — will be announcing and demonstrating a full-blown, operational PL/I (ANSI Subset G) compiler for 8080's and Z80's. Of course, it runs under CP/M, and can access CP/M files. [The 'gargoyle' reference pertains to Edsgar Dykstra's unkind remarks, some years ago, regarding IBM's overweight original PL/I. This writer does not consider that they apply to Gary's goodie — it was just too good a title to pass up.]

### Golemics has a Relation

Then there was the recent rumor from Lee Felsenstein:

[Lee is the leader of General Eclectics (dba the Community Memory Project out of Berkeley), President of Golemics, permanent potentate of the Homebrew Computer Club, and owner of LGC Engineering — which, of course, stands for 'Loving Grace Cybernetics'. He is also a very competent hardware designer and interesting sayer of sooth regarding computers futures.]

It seems that his crew, with funding from Golemics, is putting the final touches (touches?) on a microcomputer-based relational database system that will include screen editing facilities and word-processing techniques. The goodie is written in Whitesmith's C compiler (originally for a PDP-11) which now apparently offers the option of 8080 code generation.

The low-end version, possibly to be

## Real Grabbers at the Faire



Microbot's MiniMover 5, shown above interfaced to Radio Shack's TRS-80, will demonstrate at the Computer Faire that it is armed to grasp the situation at hand.

Microbot will unveil its MiniMover 5 at the Computer Faire. This tabletop robot arm is a unique instrument that attaches as a manipulative device to an inexpensive personal computer. It enables individuals or groups — such as schools and technical-interest clubs — to acquire hands-on experience with computer-controlled automation, artificial intelligence, and robotics.

The MiniMover 5 may be used for such applications as: (1) computer games, in which the arm moves game pieces on command; (2) computerized construction, in which building components may be arranged into a wide variety of configurations or programmed mathematical designs; (3) computer assembly, simulating automated factories of the future; (4) computer art, utilizing such direct graphic instruments as paint brushes, felt tip pens, etc.

A complete hardware and software package has been developed to run the MiniMover 5/80 version with the Radio Shack TRS-80 Computer (Level II). The hardware consists of the arm, its power unit, and a ribbon cable connection to the TRS-80 keyboard. For interfacing with other computers, the MiniMover 5/8P version is controlled by a single 8-bit parallel port.

The ARMBASIC software package allows control of the MiniMover and its hand by simple BASIC-like commands. The assembly language motor drivers and the Cartesian coordinate transfor-

mations are included. Sample applications programs for calibration and block construction are available.

The MiniMover 5 is a five-jointed arm with a lifting capacity of 8 oz. when fully extended. Controlled by stepping motors, it has a resolution of 0.013 inch. The parallel-jaw hand grasps objects up to 3 inches wide and may be positioned inside a partial sphere with a radius of 17.5 inches. Top speed is from 2 to 12 inches per second depending on the weight of the object being handled.

Further information on the MiniMover 5, and a special Faire offer, contact: Microbot, 1259 El Camino Real, Suite 200, Menlo Park CA 94025; (415)326-6997.

## TV or Not TV, That's Not the Question: The Consumer Electronics Industry Outlook for the 80s

by Kenneth Ingram, Senior Vice President, Sales & Marketing, Magnavox Consumer Electronics Company, and Chairman of the Board, Electronic Industries Association's Consumer Electronics Group

As the consumer electronics industry enters a new decade, it is somewhat more tempting, and less taxing, to look back to where we've been than ahead to where we are going. The astonishing achievements of the '70s are only a small sampling of things to come in the '80s as the industry continues to enhance its unique reputation for innovation and change.

There were significant milestones during the '70s that should be noted. The year 1978, for instance, when the industry broke the magic 10 million mark in color television set sales to dealers for the first time in history. And the less publicized achievement that same year when the number of color tv sets in use exceeded the number of black-and-white sets.

We continued to add to the lexicon of consumer choices with an expanding array of home entertainment products such as the video game, the video cassette recorder, the home computer, projection tv, and the videodisc. Color television marked its 25th anniversary and the age of the integrated circuit, the microprocessor and the "computer on a chip" emerged as we began to use terms like "micro" and "mini" in our product descriptions. The brief interval between lab and marketplace found more and more of us devoting an increasing amount of time to consumer education and, hopefully, consumer understanding of a leapfrogging technology.

As we enter 1980 and beyond, we find a market beset by uncertain economic conditions that will test our ingenuity and resourcefulness. Inadequate profit margins, coupled with rising

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## 5TH WEST COAST COMPUTER FAIRE

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Computer Faire, 333 Swett Road, Woodside CA 94062; (415)851-7075

## Turtlelike Teletype

by Jim C. Warren, Jr.

We have a Teletype Model 40 chain printer, here at the Faire. It has served us well. However, a two-dollar item — the form-feed contact — broke, and we ordered another one, last October.

We received a back-order notice, dated November 9th (that's 1979). Recently, noticing that we were still limping along with kludged, formfeed-less software, we called and asked about the part.

We were told — with no slightest hint that it was extra-ordinary — that the part was scheduled for delivery in August, 1980. Yes, they knew it was crucial for the proper operation of the printer. No, they didn't know if they could ship it earlier — but they'd check and get back to us, immediately.

That was a couple weeks ago, and we have yet to hear anything. Our understanding is that Teletype is still manufacturing Model 40's . . . which require that part. So, apparently, they are reserving all of the parts they manufacture for the new machines — and the people who already have machines can eat cake.

We thought you might be considering purchasing a Model 40, and thus might be interested in our experience. It's great . . . until something breaks. Then, you can call their [back]order clerk at (312)982-2132, and see if your machine is going to be usable within the next year or so.

## Here Come Decipher

*Cryptologia* is a quarterly journal devoted to all aspects of cryptology with special emphasis on mathematics and computers. Articles deal with current encryption issues as well as proposed systems. The historical and cultural aspects of cryptology and the role codes and ciphers have played in history are also featured. For more information, contact: *Cryptologia*, Albion College, Albion MI 49224.

### Conference Session

## Energy Management: A Dim Future Is Not Watts Current

Helion's MicroManager, a dedicated CMOS process control computer, developed specifically for energy conservation in the home, is the subject of Helion President Jack Park's talk at the Computer Faire.

"The MicroManager," says Jack, "is a complete computer system dedicated to performing tasks related to home energy management and security. The prototype version has two functions: it performs home energy management according to a 'home profile' provided by the dweller concerning weekday schedules as well as weekend requirements; it performs a modest amount of home security control.

"The MicroManager serves as a home energy manager by automatically controlling energy consumption according to a user-input description of the dweller's daily requirements. That is, at initialization, the MicroManager requests information such as desired temperatures throughout the day (along with acceptable variations) and time(s) of day for peak energy usage in the dweller's normal schedule. This provides a 'home profile' which tailors the MicroManager to the user's individual requirements. Once initialized, the MicroManager automatically manages energy consumption in the home.

"The impact of the MicroManager on daily life in the home depends on the way that the user configures the system. At one extreme, the only perceptible difference to the dweller is the reduction in energy consumption (as reflected in utility bills.) At the other extreme, the user may choose to adopt a new, energy-conscious lifestyle and may use the MicroManager to enforce miserly consumption. Of course, manual override of the system is allowed at any time. Also, whenever necessary, the user may reset the 'home profile' to reflect changes in the daily schedule."

### Tiny Pascal,

## We Remember Him Well

People's Software at nonprofit Computer Information Exchange is selling a tiny Pascal compiler for \$15.

Written in BASIC, People's Pascal I runs on any 16K, TRS-80 Level II system. Compilers let computerists write fast, efficient machine code while working with a higher-level language.

The People's Pascal I program development system comes on a tape with 14 programs, and 18 11"x17" pages of documentation. Programs include editor/compiler, interpreter, translator, run-time system, and two demonstration programs.

People's Pascal I compiler produces P codes, which the translator converts to Z-80 code, the TRS-80 native language. The user is given the option of optimizing for either speed or memory efficiency. Programs written via People's Pascal I run three times faster than those in Level II BASIC — graphics is eight times faster.

To produce object programs, the computerist must use the People's Pascal I programs, plus Tandy T-Bug. Use of Tandy editor/assembler is optional.

The People's Pascal I program development system, with editor/compiler and interpreter written in BASIC, and its multiple parts, is not the ultimate in speed and simplicity of use. People's Pascal II, at \$23, is easier to use and faster operating. It is all one machine-language program. Programs written in Pascal II do not execute quite as fast as those in Pascal I because the system does not produce Z-80 object programs of the user's source program.

Both Pascal I and II compile user programs into P-codes. Both systems work in an interpretive mode, interpreting P-codes into Z-80 codes. But Pascal I has a translator for creating Z-80 native-code programs, and Pascal II does not. In Pascal II, all user programs must be interpreted each time they are executed. Pascal II is still said to be four to eight times faster than Level II BASIC.

Pascal I is only for 16K systems. Pascal II is for either 16K or 32K systems. Pascal I has UCSD-like turtle graphics. Pascal I requires line numbers in the user program, and Pascal II does not.

Computerists wishing to buy direct should include 50 cents for each tape ordered, and California residents should add 6% tax (\$.90, and \$1.38, respectively, on Pascal I and II). Besides People's Pascal I and II, People's Pascal has three public-domain program tapes in Level II, and two in Level I, at \$7.50 each (plus 50 cents for postage/handling — California residents add 45 cents tax). The public-domain tapes have as many as 77 programs on them.

For further information, contact: Computer Information Exchange, Box 158, San Luis Rey CA 92068.

### Illegal

Doug Ross reports that he has a chess program that beat him . . . by castling after moving its king.

### Conference Session

## Video Interfacing: What You Get Is What You See

Recorded video instructional programming may be combined with interactive computer programs and presented to students via computerized videotape. If desired, the perfected programs of instruction may be transferred to the videodisc as that technology becomes useful.

The interactive training system, CATI (computer assisted television instruction), makes use of existing videotapes or newly created video training material. Movies, slides, stills or video-camera pictures are recorded on videotape, usually with a small video camera. The videotape machine is interfaced with a microcomputer. The microcomputer is then programmed to find desired segments on videotape and display them on the same screen used for presentation of computer data.

The CATI system, developed by Robert Whitney and his son, David Whitney, gives the instructional programmer the tools with which to shape interactive video programs from existing or new videotapes which may then be presented directly to students with the same equipment.

Robert's Computer Faire talk, "How to Produce Random Access Videotapes, Videodiscs and Other Intelligent Wonders with Your Microcomputer," will provide an explanation, description and demonstration of the CATI interactive instructional system.

### Conference Session

## Even an Unbeastly Artist Can Draw out the ANIMAL in the Computer

ANIMAL (ANIMATION Language used in creating animated scenes in color on a personal computer) will be the subject of a talk by Computer Automated Graphics' president Jim Blum at the Computer Faire. ANIMAL provides commands for creating animated scenes, running them in real time, and for saving and retrieving them from diskette. (A scene consists of one or many individual frames which are "run" sequentially to create the animation.)

One of the draw subcommands is "Paint", a continuous drawing mode (has no prompts). Dots (pixels) are placed on the screen where and whenever the stylus is held down and moved across the BITPAD. This gives the effect of a paint brush being moved across the screen. This mode will continue until a point outside the display area is selected.

The paint mode provides the creator with maximum self-expression, and is used when none of the other draw subcommands can create the desired shape or form. "Painting" takes a little practice to get used to, but once learned, becomes a very powerful tool. Besides animation, "painting" may also be used to create exciting modern art.

Jim will provide several examples of this innovation during his talk.

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## Discount is Better'n Dat Count at Computer Club Alliance

The newest computer club in Southern California isn't really a club at but, but instead an alliance of computer clubs.

Announced recently by Hobby World Electronics, is the Hobbyworld Computer Club Alliance, offering discounts and specials to selected clubs in either group or individual purchases. Discounts are offered on the smallest components, memory IC's, software, printers, terminals, and entire systems.

Details on membership can be obtained from Mr Pat Olson, Hobby World Electronics, 19511 Business Center Dr., Northridge CA 91324; 213-886-9200 x25, 800-382-3651 x25 (in Calif.), 1-800-423-5387 x25.

### Conference Session

## Drive Standard, And Leave the Busing Compatible

The personal or home computer has often been mentioned in conjunction with the concept of overall management of home environmental control and monitoring systems, home entertainment, and information systems. One of the factors inhibiting wide acceptance and realization of this concept is the fact that connecting to control and monitoring points of the home environmental systems is a complicated and costly process.

"The concept of the Home Bus Standards Association provides an optimum approach to eliminating the economic and organizational inhibiting factors," says Robert Richardson, SRI International Consumer Electronics Department Director.

Robert, who will be speaking on "Home Bus Standards Association, What is it and What does it Mean?" at the Computer Faire, adds, "The Home Bus Standards Association (HBSA) is a non-profit (IRS501C3) membership organization for the purpose of establishing a widely accepted set of communication protocols, allowing all household electrical devices to interact as parts of a modular intelligent network, using powerline carrier digital packet radio transmissions.

"The consumer benefits of a Home Bus system include direct savings from reduced energy consumption, improved personal safety, and the convenience of remote and automatic control and monitoring of every system in the home. These benefits can be provided at little or no additional cost to the consumer, due to the recent advances in microelectronic technology combined with high volume production of standardized "Bus Compatible" components suitable for use in a broad variety of applications.

"HBSA's objectives are to serve as a neutral focal point for development of an industry-wide monitoring and control signal language, and to provide fundamental public education informing consumers about the advantages of having Home Bus-type technology.

"HBSA is needed because no current organization covers the diverse spectrum of products potentially benefiting from bus compatibility: appliances, heating and air conditioning equipment, home entertainment devices, utility meters, the telephone, lights, locks, alarms, and so on.

"Through HBSA, the central nervous system of the computerized home of the future can be quickly defined, thereby facilitating the linkage of advanced technology's capabilities with immediate public needs."

## The Source of Hot News

Most of the news articles in this issue that are not related to the West Coast Computer Faire have been reprinted with the kind permission of *InfoWorld* (formerly *Intelligent Machines Journal*).

IW is the only fast-turnaround, biweekly newspaper explicitly serving the microcomputer community and those interested in inexpensive computing capabilities. It is a valuable resource to those wishing to keep up with — rather than keeping behind in — what's happening in micros.

(Remember that all of the glossy monthly magazines are feature-oriented rather than news oriented, and have a 2-3 month or more delay in publication of articles ... that's most of a generation of a microcomputer. Use the mags for in-depth coverage; use IW for the latest news.)

Subscriptions are only \$18/26 issues (one year) in the U.S. (Out-of-country rates available on request). Infoworld, 530 Lytton Avenue, Palo Alto, CA 94301, (415)328-4602.

## COMPUTER EDUCATORS:

Organize a field trip  
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in

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Please contact: Computer Faire, 333 Swett Rd, Woodside CA 94062; (415)851-7075.

### A piece of cake

In Cobol, please note that

DIVIDE CAKE INTO 3 yields 3/

CAKE, rather than CAKE/3.

### An (Unidentified) Programming Language Designer's Comment:

"There are no invalid programs in my language. There are only valid programs that do other than what the programmer desired."



## CONTROL PROGRAM FOR MICROCOMPUTERS NOW BETTER THAN EVER

You've probably heard about CP/M. But if you haven't, it's the world's most popular operating system. CP/M is considered the "software bus" for 8080 and Z80 microcomputers because it gives you the hardware-independent interface you need to make your computer work for you. Because it's hardware-independent, you can get programming languages, word processing software, and business applications packages from scores of suppliers at affordable prices.

CP/M 2.0 is the latest in the evolution of a proven reliable and efficient software system. It's the kind of reliability that comes from five years of field testing in thousands of installa-

tions. And it's supported by an experienced staff dedicated to maintaining CP/M as the best product in the industry.

CP/M 2.0 gives you many new features, with an enhanced upward compatible file system, powerful new random access capabilities, and unprecedented field alteration facilities which allow you to tailor CP/M 2.0 to manage virtually any disk subsystem. From minidisks, floppy disks, all the way to high-capacity hard disks, the flexibility of CP/M 2.0 makes it a truly universal operating system. Get yourself or your company on the software bus: contact us for further details, or ask your dealer about CP/M 2.0 availability for your computer.

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## MULTI-PROGRAMMING MONITOR NEW INDUSTRY STANDARD

Digital Research announces a deluxe operating system that provides big computer facilities at small computer prices. MP/M is a monitor program which operates with your microcomputer to provide multi-terminal access with multiprogramming at each terminal. Best of all, it's CP/M compatible which means you can run a wide variety of programming languages, applications packages, and development software.

If you want, you can run simultaneous editors, program translators, and background printer spoolers. Or you can use MP/M for data entry or data-base access from remote terminals. Or you can use MP/M real-time features to monitor an assembly line and auto-

matically schedule programs for execution throughout the day. MP/M makes an excellent focal point for a cluster of connected microcomputers. The possibilities are limitless.

Like CP/M, MP/M is especially built to adapt to most 8080 or Z80 microcomputers, with an 8086 version on the way. You can operate your I/O devices either interrupt-driven or polled, and you can even write your own system processes which are combined with MP/M through a simple system generation. It's an exciting new product from the most experienced systems software supplier in the microcomputer industry. Contact us for details, or ask your dealer about MP/M availability for your computer system.

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## Abacus Backup

During a recent gossip session with a subscriber from British Columbia, we were told that Sharp (the calculator manufacturer in Japan) now markets a 'dual' pocket calculator — an electronic calculator combined with an abacus (yup, the one with beads . . . with which many Asians can run rings around westerners using electronic units for certain types of calculations).

"The CDC6000 was my first experience with noncooperating sequential processes." —Charles Bass

## TRS Yellow Pages Give You the Business

The *TRS Yellow Pages*, Issue 1.4, is a twelve-page publication which is devoted to business software for the TRS-80, and which describes all the software produced by Micro Architect. This issue includes a data base manager.

For a complimentary copy, send two stamped, large, self-addressed envelopes to Micro Architect, 96 Dothan Street, Arlington, MA 02174.

### Anatol Holt notes:

The phone system was designed for the call-maker. "The call-receiver is a sitting duck."

## Here Comes Decode

Cryptext Corporation has developed an encryption device for use with the Radio Shack TRS-80 microcomputer. According to the company, the device plugs directly into the back of the TRS-80 or into the expansion interface via an optional cable.

The Cryptext device is designed to allow the TRS-80 user to encrypt and secure data which can then be stored in encrypted form on tape or disk. The Cryptext also reportedly allows encrypted data to be transmitted in secrecy via telephone or other media when the device is used with a modem.

To encode data, the user enters a ten-character key. This allows the possibility of  $2^{80}$  possible keys, each of which result in a different and incomprehensible version of the data. The device's internal code sequence can also be dynamically modified, thus providing more than  $2^{350}$  possible code sequences.

In order to decode the Cryptext-encoded data, one needs the encrypted data, a Cryptext device, the software, and the proper keyword. The Cryptext is supplied with demonstration software and documentation, and sells for under \$300, according to the manufacturer. The company also plans to market Cryptext modules for other types of microcomputers in the near future.

The manufacturer claims that the 80-bit key of the Cryptext makes it more reliably secure than the Data Encryption Standard, which uses a 56-bit key. The company is apparently quite confident in its own device, because they have said they are not even going to bother patenting it; instead, they are using Cryptext to encrypt its own design specifications.

Contact Cryptext, P. O. Box 425, Northgate Station, Seattle, WA 98125; (206) 364-8585.

## RUMORS . . .

*continued from page 1*

called 'Sherlock', will have minimal screen editing, and no report generator.

The middle version, named 'Sequitur' (which is not *non* in this case), will have all sorts of goodies, including fancy screen editing, WP capabilities, and report generation facilities.

And, there's no tellin' what titanic powers they will sink in the high-end pappabear version.

Lee reports that they plan to demo the system in the Golemic booth at the Computer Faire . . . possibly using a Watergate database (now let's see . . . to whom-all did Nixon say, 'Expletive deleted'?).

And, of course, the system will have add-on ability to communicate with C-Basic, Microsoft Basic, etc.

## Legal Beagles Look at UCSD Pascal

Many readers of this column — particularly tax-paying Californians — are aware that this writer has taken adamant objection to what the University of California has done regarding 'UCSD Pascal', the microcomputer version of Pascal with floppy disc operating system developed under the direction of Dr. Kenneth Bowles on the University's San Diego campus.

[Ken developed the system, at least partially funded by federal grants and state funds, using student labor (presumably paid for at student rates), and campus facilities. He widely promised its availability at low cost with several free updates and extensive support. The support was widely reported to be totally inadequate. After paying for the initial, bug-filled system, purchasers were retrospectively required to sign a previously unmentioned license agreement in order to obtain the promised updates. The license agreement was later unilaterally revoked. And the University — without public announcement or competitive bidding — awarded exclusive license for the system to Softech Microsystems (for whom Ken is now a sometime consultant) . . . which now offers the system for a handsome fee — noticeably more costly than other, more mature systems.]

In answer to this writer's offering to serve as a contact point for those considering legal action in this matter, a number of tidbits have appeared:

It seems that Softech Microsystems is not the only licensee — at least two other companies are reported to have noncancelable licenses to use and distribute UCSD Pascal. (Perhaps we can have a competitive marketplace, after all.)

Some of the support software of the system is alleged to be the proprietary product of another company, loaned to UCSD in the friendly 'good ol' days of cooperation with a reputable academic institution, and then turned over to Softech w/o that company's permission.

Another company was explicitly told by Ken Bowles that the only reason the suddenly-appearing license agreement would be revoked would be for non-compliance. That company reportedly invested more than \$100,000 in effort developing applications packages to run under UCSD Pascal, only to have their license revoked (even though they were completely in compliance with its terms) and find that they were going to have to pay a healthy per-unit fee to Softech Microsystems. They also mentioned that, since they received totally inadequate support from UCSD, they had developed extensive system support expertise . . . but were given no opportunity to bid against Softech.

Of course, these — and other callers — all reported considering legal action. (Sadly, the California taxpayers who supported the initial development of

*please continue on page 10*

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## Take Credit For Attending Computer Faire With Class (UC)

Two short courses — "Practical Introduction to Personal Computing," and "Computers for Education" — will be given in San Francisco by University of California's Berkeley Extension in connection with the Computer Faire.

Both courses are planned to help participants get the most out of the Faire, offering guidance on what presentations should be most valuable, and what equipment to examine. Sessions scheduled before, during and after the Faire provide an opportunity for preview and subsequent evaluation of presentations and exhibits.

"Practical Introduction to Personal Computing" is intended for people who have little knowledge of computers and will offer a general introduction to the subject with discussion of current and future applications. Emphasis will be on personal computers.

This four-session course will meet from 7 p.m. to 10 p.m., Tuesday and Thursday, March 11 and 13, at the UC Extension Center, 55 Laguna St (off Market St), and from 8 a.m. to 10 a.m., Saturday, and 5 p.m. to 7 p.m., Sunday, March 15 and 16, at the Computer Faire in the Civic Auditorium, 99 Grove St.

Topics and speakers are:

\* March 11: "What is a computer? What computers can and cannot do," Gerald Baugus, president of Alpha Info Systems, Palo Alto. "Computers and the future for the average consumer," Jim Warren, director of the Digicast Project, Palo Alto, and chairperson of the Computer Faire.

\* March 13: "Current uses of computers and how they do what they do, including an introduction to programming with a demonstration on a personal computer," Gerald Baugus.

\* March 15: "What to look for in computer products," John Craig, publisher of *InfoWorld*, and past editor of *Creative Computing*, and Kilobaud.

\* March 16: Panel discussion of Faire exhibits with opportunities for questions and answers about specific applications of interest to course participants, Joan Lasselle (course coordinator), technical writer at Hewlett-Packard in Cupertino, accompanied by Gerald Baugus and John Craig.

The second course, "Computers for Education," will explore classroom and other educational applications of low-cost personal computers. Academic credit (optional) may be earned.

The course will meet from 7 p.m. to 10 p.m., Thursday, March 13, at the UC Extension Center, 55 Laguna St (off Market St), and from 6 p.m. to 9 p.m., Friday, and 5 p.m. to 7 p.m., Sunday, March 14 and 16, at the Faire in the Civic Auditorium, 99 Grove St.

Topics include classroom computing activities, specific applications for elementary and secondary schools, comparisons of available computing hardware and software, computer-kit building at home or at school, and sources of materials that can be used with a computer.

Course instructor will be LeRoy Finkel, teacher of computer science at San Carlos High School and DeAnza College. Guest speakers will include Joanne Coltnow, computer consultant in Palo Alto.

Registration fee for each course is \$75, which includes admission to the Computer Faire. For further details and enrollment forms, call 642-1061 in Berkeley, or write to Letters and Science, UC Extension, 2223 Fulton St, Berkeley CA 94720.

### Apple Computer Users

## International Meeting of International Apple Corps

The Board of Directors of the newly-formed International Apple Corps announced that its first general meeting will be held on Thursday, March 13, during the 5th West Coast Computer Faire, being held March 14-16, in San Francisco's Civic Auditorium and Brooks Hall.

The International Apple Corps meeting will be on the 4th floor of the Civic Auditorium, Rooms 406.408 and 410.

The International Apple Corps will also be exhibiting in two booths (1022C & 1024) made available to it, compliments of the Faire. There will be presentations and seminars on Saturday, in the Corps 4th Floor suites. They will feature speakers and demonstrations by Apple and others.

Everyone interested in speaking or giving demonstrations should send an outline of the proposed activity to Matthew McIntosh, Faire/Logistics Chairman, International Apple Corps, P. O. Box 575, San Francisco CA 94101.

### Conference Session

## Business Computers: Turnkey or Turkey?

Why should a small business use a computer? What are the alternatives? How can the pains and the costs associated with computerization be minimized?

These issues will be dealt with in simple terms, oriented towards the prospective novice computer user in a talk at the Computer Faire by Byte Shop Computer Stores' founder and president, Paul Terrell, and Compumax president Thomas Bun.

An innovative approach will be described, based on a set of computer programs that come in a form completely ready to use, yet can be understood and set up rapidly, with minimal restrictions and great ease of change and extensions of the particular requirements of an individual business.

### Conference Session

## Microcomputer in Japan: An Orientation

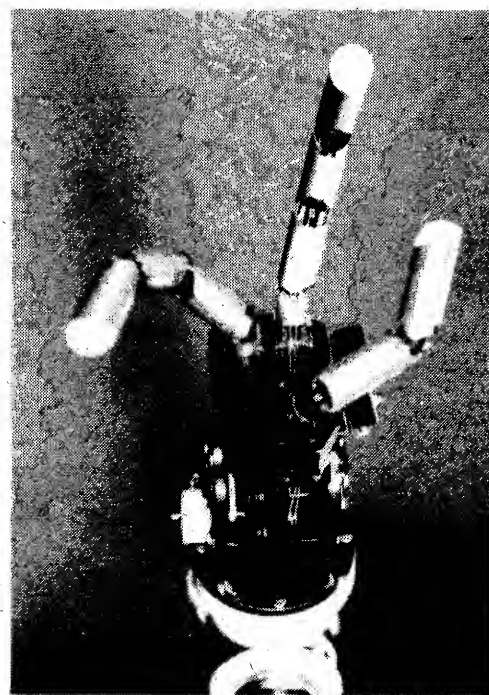
"The microcomputer market is one of the growing markets in Japan in spite of the low-growth economy in the last several years after the oil shock," says Seiichiro Yahagi, Managing Director of Nippon Time Share Co., Ltd.

In his Computer Faire talk, "The Microcomputer Market and Users in Japan," Seiichiro reviews current trends in his country.

### MEET SOMEONE

There is an excellent place to rendezvous with friends and business associates at the Computer Faire in San Francisco. Arrange to meet them in the balcony overlooking the Civic Auditorium exhibit arena. Suggest that they look for you in the left, right, or center seating area.

# GIVE YOUR COMPUTER A HAND



Have you ever wanted to do more with your micro than play computer games and balance your checkbook?

Finally, there is a unique new quarterly magazine that gives you all the information you need to transform your home computer into a working **ROBOT!**

ROBOTICS AGE covers every aspect of robot research and experimentation—from the basic principles to the latest developments in laboratories around the world. In our features, special emphasis is given to plans, circuits, and programs that you can use in your own microcomputer-controlled robot. Each article is designed to be understandable to the novice experimenter, but with technical detail and complete references that will satisfy even the

professional researcher. Added to that are robotics-related New Products, Book Reviews, abstracts of selected recent technical papers, and reports on how you can participate in the growing number of robotics and Artificial Intelligence organizations in the US and abroad.

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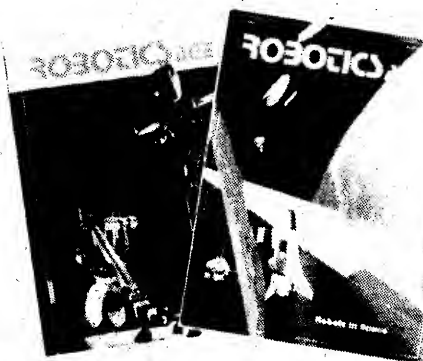
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## WHATSIT Prints Charmingly

"WHATSIT?" (trademark), a conversational filing and query program for personal computers, is now available in a new printing version for the Apple II, according to Computer Hardware, its developer.

Called a "self-indexing query system," the program has been available since 1978 in versions for CP/M and North Star computers. By cross referencing data entries in disc storage, WHATSIT is able to answer direct questions, phrased in simple "pidgin English."

Always spoken of as "her" in the 160-page user's manual, WHATSIT distinguishes herself by her breezy, impertinent repartee, including such rejoinders as "News to me!" when queried for information not currently on file, or "Never mind!" when the user cancels a request unexpectedly.

An acronym for "Wow! How'd All

That Stuff get In There?," WHATSIT responds at conversational speed ... even in files containing hundreds or thousands of entries. Typical response time is 2 to 10 seconds, the firm claims.

In contrast to the rigid formatting demanded by other programs, WHATSIT's open-ended data structure evolves continuously as the system is used. New file headings, unlimited in number, may be added any time ... then remain available for future reference.

To accommodate large files, the program squeezes 2000 or more entries onto a 5-inch disc ... up to a total 25,000 using four discs in the CP/M format. Detail entries are automatically cross-indexed under any desired headings.

Applications of WHATSIT include desktop indexing of investment portfolios, music or hobby collections, customer lists, household or professional files. At least one WHATSIT customer uses the system to index real estate listings.

### Conference Session

## Computer-Assisted, Astronomical Self-Identity: Aries Finds Itself in RAM

The amateur astronomer's main activity at the telescope is to seek out and identify numerous celestial objects within the limitations of his optical (or radio) equipment and of existing "seeing" conditions. Objects are found by their celestial coordinates (right-ascension: equivalent to longitude, declination: equivalent to latitude). These data are listed in many standard reference works, and, of course, designate an enormous number of stars, double stars, clusters, cluster galaxies, etc.

Dark-adaptation of vision is a sine qua non for most effective use of the telescope, and the necessity to illuminate and leaf through pages of hard copy is a tedious and time-consuming chore. The microcomputer CRT set up on or adjacent to an observation deck, is an ideal solution for selected storage, rapid retrieval, and minimal degrading effect on the dark-adapted eye.

Sidney Levin, of the Astronomical Society of the Pacific, will speak on "Microcomputer-Assisted Amateur Astronomy" at the Computer Faire. In addition to location-data programs, other useful programs discussed include: retrieval of events, dates, and times (Jupiter satellite eclipses, planetary oppositions); translation of known celestial coordinates to navigational ones (altitude and azimuth); software creation of a sidereal clock; and educational programs to illustrate principles of astronomy and physics.

Sidney uses a TRS-80 model 1, level II computer with 32K of RAM, and single disc drive. Programs are in BASIC and quite simple, though much of the sophisticated capability of the computer is utilized (trigonometric functions, real-time clock, and graphic display. All of the programs were originally stored on cassette tape, the only disadvantage being slow loading.

## SEEDing the Database

The first CODASYL-compatible database management system for microcomputers is being distributed by Microsoft of Bellevue, WA. MicroSEED, in its initial release, runs under CP/M with Microsoft's FORTRAN-80 as the host language. It is a useful software tool for microcomputer applications in which the data base is too large for conventional file handling methods.

Micro-SEED is a compatible subset of the larger SEED DBMS, originated by International Database Management Systems, Inc., in Philadelphia. In addition to the CODASYL recommendations, Micro-SEED implements extra features, such as self-optimizing FIND commands, that further streamline access to the data base.

Written primarily in FORTRAN (with isolated assembly language routines for I/O and buffering), Micro-SEED is easily transported to various 8080/280 hardware configurations. It is implemented under CP/M like a FORTRAN application and therefore places very little extra burden on operating system tasks. A 64K microcomputer system is required to support the DBMS.

Micro-SEED uses the CODASYL schema, sub-schema and area methods to divide and define the data base, providing easy access from user programs. The routines for managing the database (data manipulation language) are then called from the user's application programs, written in FORTRAN or other host language.

A relational query language and report generator called HARVEST and an interactive system utility program called DBLOCK will be available as add-ons to the system in 1980. They will run on upward compatible versions of Micro-SEED that utilize 16-bit microprocessors. Additional host languages (Microsoft COBOL-80, PASCAL-M and compiled BASIC) will also be supplied in future releases.

For more information, contact: Microsoft, 10800 NE 8th, 819, Bellevue WA 98004; 206/455-8080.

"ALGOL 68 ... that's Overextended Algol ..."

—Tony Hoare, 1979 U.S. Santa Cruz Summer Computer Science Institute

## P&T CP/M®2 unleashes the POWER of your TRS-80 MODEL II

Pickles & Trout has adapted CP/M 2, one of the world's most popular operating systems, to the TRS-80 Model II and the result is spectacular:

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"Good judgement comes from experience. Experience comes from bad judgement." —Jim Horning

# WHAT'S GOING ON?

(with the "Original" TRS-80® Users Journal)

We will be at the Faire, Booth 1122C, Brooks Hall

In the Jan-Feb 1980 issue of the 80-U.S. Journal you will find a Text Editor, complete with on-screen editing, written in BASIC, and it's for both the Mod I and Mod II TRS-80. There is also a Lower Case Mod, without hardware modification, which is a simple, short BASIC routine! As if that weren't enough, there is also a complete listing for a "College Selection" program, a Model Rocket Design & Performance program and a Cassette Library (index) program! There is an article on the Exatron Stringy Floppy, a discussion of CP/M and in Assembly Language, a program which allows

you to define Keyboard Macros. Plus all the regular features of course, with tutorials, New Products, Reviews and the Business Section. We call it our "80-cubed" issue - 80 pages, in 80-U.S. for 1980! It isn't called the "TRS-80 Users Journal" for nothing, it really is just that! It is published bi-monthly, and costs \$16.00 per year in the US. Get a sample current issue (first class mail) for just \$3.00. Use your VISA or Mastercharge and call (206) 475-2219 today! Or, send check or Money Order to: 80-U.S. 3838 South Warner Street, Tacoma, Washington 98409

Yes, we are the originators of Android Nim and other animated graphics/sound software!

*The 80-U.S. Journal*

TRS-80 is a trademark of Radio Shack, a Division of the Tandy Corporation



## LPSPool: More Than Just Spooling Around

LPSPool, a line printer spooling facility for the Radio Shack TRS-80 Model I has been announced by Automated Resource Management Inc. LPSPool permits concurrent printing in the foreground while normal TRSDOS operation continues in the background. A multi-tasking monitor permits switching between foreground and background processes. The Despooler accesses spool files through a queue which may be generated by a utility program or automatically by the Spooler. A separate spool and despool queue is maintained by the system. Each Queue entry allows the specification of spool filename, number of copies, form type, whether the file is to be printed immediately, and whether the queue entry and/or file is to be deleted after printing.

A two-disk 32K or 48K byte system is required to support then3K assembler program.

The diskette includes: a 32K version; a 48K version; a queue maintenance utility; a demonstration program which leads the user through LPSPool's facilities; and a comprehensive user manual. For more information: Automated Resource Management, Box 4353, Irvine CA 92716; (714) 963-2975.

## Pascal Compiler "Test Copies"

Rational Data Systems announced recently "Evaluation Releases" of its Pascal compilers for the full line of Data General computers.

For a service charge, Rational Data Systems will supply a Programmer's Manual and a Pascal compiler and runtime system tailored to the customer's specific configuration, along with a license to use the materials for 60 days.

There are two versions available, one for Data General's AOS operating system, the other for the RDOS and DOS operating systems.

Those interested should first request a 'Purchasing Packet' which contains the ordering instructions and appropriate agreements from Rational Data Systems, 245 West 55th Street NYC 10019; (212) 757-0011.

Conference Session

## Deleting Secret Terrors About Computers

"Today you can have in your own hands the same amount of computer power that only a few years ago was reserved to the large corporations and to governments. You can buy it for the price of a household appliance, a color tv, or, if you get fancy, a car," says Nicholas Rosa.

In his talk, "Beginners, Gather 'Round, or Welcome to the Small Computer Revolution," at the Computer Faire, Nicholas answers basic questions about computers. "Somewhere each of you has a bottom-line question about computers. The answer to everybody's question is a qualified 'yes'.

"It's a qualified 'yes' because the computer cannot do anything for you all by itself. You will do whatever it is you hope the computer will do. You will work all the miracles. The computer is only your tool. In order to make it work its magic for you, you will have to understand the tool. You will have to learn how to use it.

"That may sound discouraging. The very word, 'computer', already sounds so technical, so forbidding. Could you really learn to use this tool? The answer is 'yes.' You already use countless tools. You use pencils, you use sewing needles. You use typewriters and sewing machines. You run dishwashers and clothes washers and ovens-with-timers. You drive a car. Using each of these tools requires a certain amount of skill. You have learned that skill.

"Even so, you may be holding onto a secret terror about computers. Everybody in modern American society is a little paranoid about computers. We all remember HAL from 2001. HAL was as smart as the astronauts aboard, but tricky, sinister. Evil. HAL fits our deep-down notions about computers. We all know that there's a computer somewhere watching us. Several computers. Lord knows how many computers. The IRS has got one (several BIG ones). The Telecredit network has got one. Your bank has got one. All those computers are tigers, waiting out there in the dark.

"Your personal computer will be a pussycat. Your pussycat. And some day — perhaps sooner than we can imagine — an army of personal pussycats may put those tigers to rout. For one thing, your personal computer is going to help you become computer-wise. That is going to make a difference. Out there."

Problem:

What is the algorithm for computing "one month from d"?

Now, apply it for d=January 30.

## Making Computers Read and Speak

Limited font, optical character recognition, and limited vocabulary speech response have been in office use for some time. By incorporating artificial intelligence (sophisticated programming that emulates simple human thought processes) two new technologies have been developed — omni-font OCR, and unlimited vocabulary synthetic speech.

Art Derfall of Kurzweil Computer Products, will speak at the Computer Faire about these two new technologies: their unique applications to system input and output, and how his company combined the two into one system, producing the Kurzweil Reading Machine for the blind.

## QUESTIONS & ANSWERS FROM SSM

"What equipment can be used with the AIO?"

Since the introduction of the AIO Serial & Parallel Apple Interface in September 1979, thousands of units have been sold to interface the Apple with a variety of printers and terminals. A partial list of devices that have actually been tested with the AIO includes:

IDS 440 Paper Tiger  
Centronics 779  
Qume Sprint 5  
NEC Spinwriter  
Comprint  
Heathkit H14  
IDS 125  
IDS 225  
Hazeltine 1500  
Lear Siegler ADM-3  
DTC 300  
AJ 841

"Will the AIO work with a PAPER TIGER at 1200 baud serial?"

Yes. The AIO has 3 handshaking lines for serial connections. The baud rate can be set with a rotary switch to 110, 300, 600, 1200, 2400 and 4800 baud. (Ask for a data sheet for more details on how to go up to 19,200 baud.)

"Does the AIO work with Pascal?"

Yes. The current AIO serial firmware works great with Pascal. If you want to run the parallel port, or both the serial and parallel ports with Pascal, order our "Pascal Patcher Disk".

"I'm an OEM with a particular need. Can SSM help me?"

Yes. The AIO is just one of several boards for the Apple that SSM will be introducing over the next year. We are also receptive to developing products to meet special OEM requirements. So please contact us if you have a need and there is nothing available to meet it.

SSM will soon be moving to a new and larger facility in San Jose. Look for our new address and telephone number in our ads in Byte magazine, page 11.

We welcome inquiries from new dealers, distributors and OEM's.

Please send in any suggestions, or applications information (AIO uses, printer and terminal hook-up diagrams, etc.) or your ideas for new products. We welcome your comments!

See us at the Faire—  
Booths 1329 & 1331C!

## Computer-Chess Players Never Turn in Their Chips — They Just Pawn Their Software, Hoping for a Good Knight

The 1980 Computer Faire Micro-Chess Tournament will be under way with at least six micros competing for the title. At the 1978 Tournament, Sargon made the news and enlightened the computer hobbyist on what could be achieved with a micro. The success story continues for the Spracklens with their newer version of Sargon 2: 2.5, and the Sargon 3. This year's tournament is still open to all who feel they have a quality chess program, and want to find out how it does against such programs as Sargon 3, Mychess 2, Voice Challenger, and the Atari Chess.

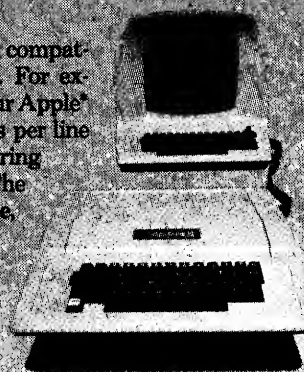
For details on entering, contact: John Urwin, 1537 Argyle Ct, San Jose CA 95132; (408)923-5662.

## Why not kill two birds with one stone?

If you have an Apple\* and you want to interface it with parallel and serial devices, we have a board for you that will do both. It's the AIO.\*

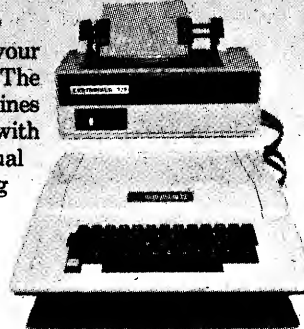
### Serial Interface.

The RS-232 standard assures maximum compatibility with a variety of serial devices. For example with the AIO you can connect your Apple\* to a video terminal to get 80 characters per line instead of 40, a modem to use time-sharing services, or a printer for hard copy. The serial interface is software programmable, features three handshaking lines, and includes a rotary switch to select from 7 standard baud rates. On-board firmware provides a powerful driver routine so you won't need to write any software to utilize the interface.



### Parallel Interface.

This interface can be used to connect your Apple\* to a variety of parallel printers. The programmable I/O ports have enough lines to handle two printers simultaneously with handshaking control. The users manual includes a software listing for controlling parallel printers or, if you prefer, a parallel driver routine is available in firmware as an option. And printing is only one application for this general purpose parallel interface.



### Two boards in one.

The AIO is the only board on the market that can interface the Apple to both serial and parallel devices. It can even do both at the same time. That's the kind of innovative design and solid value that's been going into SSM products since the beginning of personal computing. The price, including PROMs and cables, is \$135 in kit form, or \$175 assembled and tested. See the AIO at your local computer store or contact us for more information.



**SSM**

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Santa Clara, California 95050  
(408) 246-2707

\*Apple is a  
TM of Apple  
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Inc.

## Conference Session

InGROWn Knowledge:  
A CAI OutGROWth

The teaching machine has characterized much of computer-assisted instruction in the past years: students are presented with "frames" or questions, and must provide short answers to proceed. This style of learning can be slow and uninteresting, especially as the subject matter and the method of presentation is fixed. In order to provide a richer CAI environment, a group of educators and computer scientists have developed the GROW system, in which the knowledge stored in the computer is mutable, and reflects opinions of students as well as those of teachers. Also, the GROW system allows CAI programs to be both written and used in a variety of styles and formats.

"CAI: A Different Way," is the topic of a Computer Faire talk by Jeff Levinsky of Computer Systems Design Group.

"GROW," says Jeff "is an attempt to apply non-traditional solutions to some of the traditional problems of CAI. To counter the sterile and passive nature of many CAI presentations, GROW incorporates several basic motivational techniques and allows for creative flexibility. This includes having the student participate in an active role, having 'knowledge' be mutable and controversial, and having evaluations be carried out by other individuals rather than by machines. With GROW, the computer need not play the role of teacher but can instead be viewed only as a tool for learning and for reference. And the variety of presentation styles and the subjectivity of the communication permits GROW to be used in educational disciplines in which CAI has been typically ignored. Finally, GROW is designed for many levels of users: beginners need not know even that the system is extendable, while advanced users can develop nodes and systems of nodes using the powerful tools and languages available."

By law in Denmark, each citizen has the right to see all government data about that individual.

## Conference Session

A Touching  
Communication

The Versatile Portable Speech Prosthesis (VPSP) is an on-going project to develop a wheelchair-portable speech synthesis system capable of unlimited vocabulary and message construction, and designed to simplify message construction for the user. This simplification was achieved via two methodologies. Linguistic analyses of language structure were used so as to limit the number of items the user must choose from at any point in the message construction process. Limiting list size will reduce search time for humans as well as computers. Additionally, a single switch (1 bit) user input requires that the system automatically present the user with successive alternatives until the user uses the switch to say "yes" to one of the alternatives. The fewer alternatives, the faster, on the average, the system will arrive at the item the user wants. To this end, rules of syntactic and graphophonotactic constraints on choices for selections were incorporated into the system logic. Linguistic human factors' experiments were also conducted to determine which of several alternative design principles produce the fastest visual search times for words and for letters used in message construction.

Carol Simpson, a major developer of VPSP will present in her Computer Faire talk ("Alphabetical Versus Graphotactic CRT Page Layout of Letters for a Versatile Portable Speech Prosthesis (VPSP)") results of a linguistic human-factors study of alternative layouts for CRT menu pages, and will discuss application of the results to the design of single-switch communication aids.

Carol notes, "The VPSP is a working prototype that is at this time being used to collect data essential to improving the human factors of its design. The present system has demonstrated feasibility. The current phase of the project is a comparative evaluation of alternative design principles with actual users."

Mastering Data  
Communications

A unique program at a small university in San Francisco is setting the pace for future graduate education of data and telecommunications managers.

Golden Gate University, a private school specializing in education for emerging business needs, graduated its first class last year with a masters of business administration specifically in telecommunications — apparently the first such MBA in the nation.

The evening program consists of 20 classes that can be completed in two years. Many of the students, generally in their late 20s, see the program as needed academic training for a profession that is moving from middle-management to top-management status.

"We are producing the managers who will be more and more needed because changing communications technology is itself changing the way companies do business," says Terrence Easton, the chairman of the department.

## PROGRAM

No technical training beyond calculus is needed for admission to the program. The first year consists of traditional MBA courses in economics, management, and accounting, plus one course each in telecommunications and data communications.

The second year takes the student into the legal and regulatory aspects of the business, networks and switching, advanced data communications, and the design and management of international systems. A broad range of electives include video and computer conferencing, and distributed processing.

"We support it [the MBA program] very strongly," says Donna Parker, president of the Northern California chapter of the Telecommunications Association. Some of the chapter's 400 members are enrolled in the program because "in the past the industry has depended on people who were trained only by experience, often in one of the Bell companies. But now the demands of the job are so great that college training is needed."

Donna, also the director of administrative services, including telecommunications, for Envirotech Corp., Menlo Park, California, is a strong believer in the business focus of the MBA program. "You're not only looking at the technical matters but worrying about financial analysis, personnel, and budgets . . . you need a lot of business sense."

## BUSINESS COMMUNITY SUPPORT

Perhaps the strongest recommendation, however, comes from the business community. Most of the instructors are working managers, and the Golden Gate advisory committee that recommended that the few classes once offered at the school be expanded into a full MBA, reads like a *Who's Who* of telecommunications in the San Francisco Bay area. Included are the computer and communications manager of Qantas Airways Ltd, the director of telecommunications for the California State Auto Association, the manager of the logistics systems development for Del Monte Corp., the division manager for AT&T Long Lines, and the vice president of operations for Southern Pacific Communications Co.

In fact, the school has become something of a placement office, with students looking for jobs, and corporate managers teaching classes with one eye on likely candidates for their growing departments. "There's no secret about it," says university president Otto Butz. "Some of our part-time instructors say that teaching a class is like having four months to look over a potential employee."

Students graduating this year can expect salary offers of about \$17,000 per year, which is about normal for graduate MBAs, says Terrence. But those students able to combine their MBA with several years of experience will attract offers of \$26,000 or more.

## PROBLEMS

The problems with the program reflect the rush into the new field. Some of the classes are getting crowded, according to James Koerlin, an instructor who spends his day as the corporate communications specialist for Lucky Stores Inc.'s 1,400 stores. "But the biggest headache is the lack of textbooks," he says. The newness of the field and its ever-faster-changing technology and legal status have kept many traditional textbook publishers away.

Perhaps the biggest problem for the fledgling academic approach to so new a profession is exactly the same problem that besets the whole industry, suggests James. "We are an industry looking for an identity," he says.

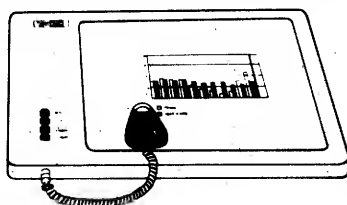
Traditionally, telephone services have been under the office manager or controller. Recently, however, a feud has been brewing as various corporate departments have jockeyed for control of communications. This problem has shown up at Golden Gate, as well. What one insider calls a "power struggle" emerged soon after the MBA in telecommunications was proposed. The data processing department claimed that subject matter as its own, while James, backed by the advisory committee, contended that it was a separate discipline.

In the future, says James, data processing will be considered a sub-area within communications, which is a position that is often disputed. "We fought it out and finally decided to make it a program by itself," says Otto, adding that enthusiasm from both students and the business world has since confirmed that decision.

This Spring, information systems courses as well as courses in general management and other subjects will be offered at the University. For further information, contact: Golden Gate University, 536 Mission St, San Francisco CA 94105; 415-442-7000.

# Now... You, the small systems user can enjoy the advantages of HI-performance *low cost* computer graphics

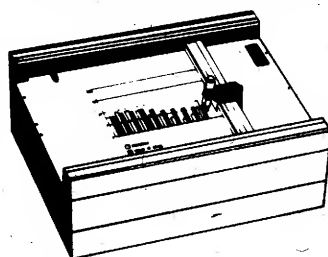
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- Completely assembled and ready to use
- Priced at \$1085\*

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- Resolution and repeatability of 0.005 in. (0.1 mm)
- Origin is completely relocatable
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- Optional LC display shows actual values being inputted
- Digitizing surface 11" x 11" (28 mm x 28 mm)
- Priced at \$795\*

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## The Terminal Condition Is Either Up or Down

After several years of growth rates hovering above 30%, unit shipments of alphanumeric CRT terminals fell to a 22% growth rate during 1979. Although the industry continues to grow rapidly, the rate is below manufacturer's projections, according to a recent study by Venture Development Corporation.

The study *Alphanumeric CRT Terminal Industry: A Strategic Analysis*, points out that projections made by terminal manufacturers during the first quarter of 1979 signaled a yearly growth rate "as good as or better than 1978." This growth rate has not materialized as second-half shipments slowed when the heavy backlogs from 1978 had been met.

Combined shipment volumes of conversational, editing, and processing CRT terminals reached 473,000 units in 1979. These units were valued at \$1.6 billion, up 13% over 1978.

Sales of the low-end conversational CRT terminals were up 28% over 1978. Shipments of these "glass-teletype" or "dumb" terminals, long thought to be declining, made significant gains, primarily due to price reductions. Product enhancement and added features, such as cursor controls and a page or two of buffered memory, also spurred the shipment growth of these low-end terminals.

Shipments of editing terminals composed of the IBM 3270 and terminals offered by 3270-compatible manufacturers increased only 13% in 1979. Demand for 3270-type terminals is high, but delivery times have been stretched out as production rates have reached their current limits. IBM's delivery problems have given 3270-compatible manufacturers a second wind following the 3270 price reductions and product enhancements announced in 1977.

The non-3270 editing CRT terminals led all categories in shipment growth during 1979. Shipments of this class of CRT terminal increased 31% over 1978 levels. Non-3270 terminals have at last caught up with the 3270-type terminal. By 1981, non-3270 editing terminals will surpass the 3270-type in annual shipments and continue to widen the gap through 1984.

Thanks to distributed processing concepts and advances in communications, the processing CRT terminal category is beginning to expand. These "intelligent" terminals composed of single stations and "clustered" units are expected to be the fastest growing sector of alphanumeric CRT terminals. 1979 shipments of "keystations" or clustered units were up 16% over 1978. VDC expects this growth rate to increase to 28% during the next five years, 1979-1984.

In analyzing the competition, the VDC study places IBM as the dominant manufacturer with a 23% market share of the installed base of all alphanumeric CRT terminals. This percentage is considerably below IBM's share of other computer equipment markets, but is nearly four times greater than any other CRT terminal manufacturer. IBM's strength is in the 3270 market, but 3270-compatible manufacturers are continuing to chip away at IBM's share. During 1979, IBM's share of the 3270 market eroded to 65% as the 3270-compatible manufacturers increased their share by 3% to 35%.

For the long term, VDC expects the total installed base of alphanumeric CRT terminals to grow at a compound rate of 21.6% for the five-year period 1979 to 1984. This growth rate will yield over 4,500,000 units installed at year end 1984, up from 1,700,000 at year-end 1979.

For further information, contact: Venture Development Corporation, 1 Washington St, Wellesley MA 02181; 617-237-5080.

## Hot Micro Product? Show it at the Faire

Do you have a dandy micro device, super software, beautiful book, or other exciting micro product? Why not sell 'em at the Computer Faire?

[Unlike the National Computer Conference and Wescon, the Faire *does* allow exhibitors to sell from their booths, as well as exhibiting their products.]

The Faire has just expanded its exhibit area to include more microbooths (for low-budget computer craftspeople) and more regular booths. While they last (all exhibit space is available on a first-contracted; first-assigned basis), microbooths are available for \$200 and the regular booths are \$650-\$800 depending on location.

For information on what's left and how to most quickly contract for it, call 'Git (Marguerite), Sarah, or Bob — the Faire Exhibitor Coordinators — at (415)851-7075.

## Trade Association to Meet During 5th Computer Faire

The Microcomputer Industry Trade Association (MITA) will hold its first 1980 General Meeting, during the 5th West Coast Computer Faire in San Francisco. The meeting will take place in the Civic Auditorium, on Friday afternoon, March 14, beginning at 6 p.m. (immediately following the close of the exhibits).

The meeting is open to all members and prospective members — anyone in the management of any company addressing the microcomputing industry. This includes manufacturers, distributors, retailers, software houses, publishers, show organizers, and so forth.

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## Conference Session

## Taking Away HIPO Leaves a Pot o' Mess

Master Schedule: a management tool that means nothing to any concerned party, but is required by persons removed from the project.

In his talk, "A Case Study in Unstructured Software," to be delivered at the Computer Faire, Boeing Aerospace Specialist-Software Engineer Howard Hollander details a nonfictional account of an unstructured software project using HIPO (Hierarchy plus Input-Process-Output) — a degenerate tale, indeed.

## Conference Session

## A New Slant For Tilting the Odds In the Investment Game

During the past several years, considerable effort has gone into researching methods of tilting the odds in the investment game. Out of this has come the discovery that not only can the odds be tilted, but that they can be tilted drastically, and in either direction. In

"One dinosaur's Jacuzzi is another dinosaur's tarpit." —Butler Lampson, Xerox PARC

particular, the strategy of hedging listed options against common stocks, when properly applied, can be proven to be more conservative and more consistently profitable than the simple buying and selling of stocks; so much so in fact that the Securities and Exchange Commission has recently ruled it a legal operation for trust and pension funds. The idea of an investment being more conservative and at the same time more profitable of course violates one of the widely 'known' tenets of Wall St. However, in recent times much that was widely 'known' has been found to be wrong.

The only disadvantage of this strategy is its complexity. Since certain tactics, by their very nature, tend to shift the odds in your favor, while other tactics, by their nature, make it almost impossible not to lose, there is really no viable alternative to a large initial investment in self-education plus a continuing expenditure of time and effort.

## RUMORS . . .

continued from page 4

the system to which they apparently no longer have low-cost access or rights, will also pay for the UC attorneys who will defend the University's non-bid, unannounced exclusive award of rights to Softech.)

Most recently, the possibility of an industry-wide, class action suit by the Microcomputer Industry Trade Association was raised at the January meeting of the Association's Board of Directors. Although no action was voted at that meeting, it was agreed that further consideration should be given to the possibility at the next next meeting, which will take place during the West Coast Computer Faire. [Note: Although this writer serves on that Board, and heartily supported the proposal, he cannot take credit for its origination — another MITA Board member first suggested it.]

## UNIX for Mere Humans

We recently heard that Bell Labs has finally made a move to allow unweathly, un-university humans to gain the voluminous benefits of UNIX — at least through a wealthy middleperson. The word is that Western Electric, the sales arm of Bell Labs (or is Bell Labs the creative arm of WE?) is now allowing companies to purchase the right to market UNIX as part of their computer systems . . . for a \$35K-\$40K one-time fee plus \$50K advance against royalties (the company, not the machine purchasers, has to pay it, and it can then be prorated over many machines), plus a paltry couple thou or so, per machine.

This is the full-blown, true-blue, honest Bell Labs UNIX — not some home-grown (or underground) subset. We hear that there is at least one company in the S.F. Bay area, Onyx by name, that is busy having the C compiler, then full UNIX, implemented on their Z8000-based system. The system will include a 20+ megabyte Winchester disc and tape cartridge backup. Rumor places the end-user price of a small multiuser system at about \$17K-\$20K.

(Sadly, and foolishly in this writer's view, they are *not* planning to offer an industry-compatible (= IBM-compatible) tape drive . . . meaning that all those potential customers who'd love such a system if they could transfer massive files back and forth between IBM dinosaurs and real computers won't buy it 'cause they can't do it. Ah well — that's the nice thing about those kinds of companies; they're obviously the kind that enjoy creating a market for some more responsive competitor's system.)

## For those not familiar with UNIX:

It is a multi-user, multi-tasking (meaning one user can simultaneously run multiple tasks or programs) operating system, originally designed to run on a medium or larger PDP-11. Except for a very small kernel of I/O and interrupt handlers that are programmed in assembler for the target machine, the entire system is programmed in a very nice, block-structured (i.e. similar to Algol or Pascal) high-level language called 'C'. Not only is it attractive because of its multi-tasking/user and C-based features; it is particularly attractive due to the massive multiple volumes of applications software already part of the system.

Until recently, UNIX was available at almost no cost to colleges and universities, and at outrageously high costs (without support) to private users. Perhaps this new approach — charging much loot to those who can make a profit from resale of the system (and who will offer support for it, we hope) — is an excellent alternative for getting UNIX out of the [Bell] Labs and economically

## BEGGETTING MONEY

Several years ago, Dr Alfred Adler (whose talk at the Computer Faire is "Four Programs for Use with Listed Option and Common Stock Investment Strategies"), asked himself the following question: How can money be used to make more money, without becoming involved in a product or a service? By this he meant consistent, long-term income, not sporadic profits interspersed with long periods of loss. The main thrust of his effort in attempting to answer this question has been directed toward the security markets.

The author's interest in stock market operations is primarily from the point of view of a mathematician. He firmly believes that the market is inherently unpredictable and that strategies based on hedging and the mathematics of probability are far more likely to be successful than those based on 'fundamentals,' 'technical factors,' or the reading of tea leaves. The ongoing study of investment strategies has included a series of computer programs which were written primarily for study purposes. The more useful of those have evolved into production programs which are used in the everyday management of investments. The programs were originally developed in PolyMorphic Basic, and have recently been revised and converted to North Star Basic. These are available from the author and a TRS-80 16K Level II version is available from Creative Computing Software.

The four programs to be presented are designed to be used in the real world, and include the effects of commissions, margin interest, and dividends, where applicable. The first presents the important indices for both opening and closing call-option transactions, including hedge ratios from zero to infinity, not inclusive. Another presents a graph or a table, as the user chooses, of profit from any combination of six basic positions: long or short a stock, long or short a call, and long or short a put. The third program enables the user to predict the future price of an option at user chosen future times based on user chosen future stock prices. The output may be displayed as either a chart giving future prices of options with three different exercise prices at three expiration dates, or a graph giving the future price of one option over a range of user chosen future stock prices. Finally, the fourth program enables the user to determine on an item by item basis the cost, current value per share, total current value, and capital gain of a portfolio consisting of long and short stock, and long and short option positions.

# HEATHKIT™

computers and Zenith Data Systems are covered every month in Buss: The Independent Newsletter of Heath Co. Computers. The November issue featured a report on the firm's plans for the 80s. Highlights included the future of the H8, the software situation, and a half dozen products planned for the new decade. In December Buss continued its coverage of 32K and 64K dynamic RAM for the H8. The January issue carries news of an H89 modification to allow use of the CP/M 1.4 disk operating system.

Buss has been published since April 1977. It emphasizes candid accounts of the experiences of its 2500 subscribers. Compatible hardware and software from all vendors is featured. Buss is mailed first class. You have the choice of starting with the latest issue or available back issues (about 10). U.S. prices: 12 issues for \$9.97; 18 for \$14.50; 24 issues for \$17.75. Buss, 325-G Pennsylvania Ave., S.E., Washington, DC 20003.

# PASCAL

## FROM START TO FINISH

### The BYTE Book of Pascal

Edited by Blaise W. Liffick  
Based on the growing popularity of Pascal as a programming language, numerous articles, language forums and letters from past issues of BYTE magazine have been compiled to provide this general introduction to Pascal. In addition, this book contains several important pieces of software including two versions of a Pascal compiler — one written in BASIC and the other in 8080 assembly language; a p-code interpreter written in both Pascal and 8080 assembly languages; a chess playing program; and an APL interpreter written in Pascal. \$25.00 Hardcover pp. 342 ISBN 0-07-037823-1

### Beginner's Guide for the UCSD Pascal System

by Kenneth L. Bowles  
Written by the originator of the UCSD Pascal System, this highly informative book is designed as an orientation guide for learning to use the

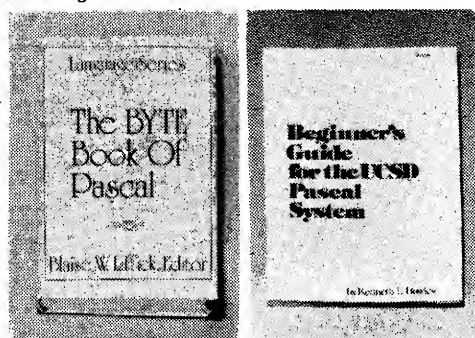
UCSD Pascal System. For the novice, this book steps through the System bringing the user to a sophisticated level of expertise. Once familiar with the System, you will find the guide an invaluable

reference tool for creating advanced applications. This book features tutorial examples of programming tasks in the form of self-study quiz programs. The UCSD Pascal Software Systems, available from SofTech Micro-

systems Inc, 9494 Black Mountain Road, San Diego CA 92126, is a complete general purpose software package for users of microcomputers and minicomputers. The package offers several interesting features including:

- Programs which may be run without alteration on the General Automation or DEC PDP-11 minicomputers, or on an 8080, 8085, Z80, 6502, 6800, or 9900 based microcomputers.
- Ease of use on a small, single-user computer with display screen and one or more floppy disk drives.
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## Courting Legal Protection In The Software Jungle

In Greek mythology there is a detailed account of the god Prometheus, giving the gift of fire to mankind. It was soon after that someone received the first burn. In a similar manner, the computer has proven its utility to humanity in numerous ways. The complex legal problems associated with computer use are now becoming more apparent in both the civil and criminal courts.

The high demand for applications software has resulted in a small army of independent developers and distributors. The computer industry has quickly reached the multi-million dollar stage. A single program can cost anywhere from a few dollars to a hundred thousand dollars depending on its complexity. It comes as no surprise that piracy of software is fast becoming a major concern to software developers who may have invested much time and effort in their creations. The question is not whether any protection exists for software, but which alternative offers the best protection.

As programs with real-life applications proliferate, it is conceivable that lawsuits will be filed against the original software developer for damages or injuries arising from the use of their programs. Unsophisticated consumers should be aware of the simple means they can employ to protect their investment in software when dealing with an independent vendor.

"These are only a few of the problems facing the computer industry today," says attorney Raymond Karch. His talk at the Computer Faire, "The Software Jungle: Legal Pitfalls," deals with some of the legal problems that are commonly encountered by software developers, distributors, and purchasers. Alternative methods of software protection are seen in the context of copyrights, patents, and trade secrets. Potential liability from software use is explored along with means to limit it.

Conference Session

## Bringing Computers To the Masses

"Inexpensive and easy-to-use microcomputers offer the possibility of expanded use of computers, both into new areas, and by people who have never before considered using them. But the expansion beyond the naturally motivated population does not necessarily follow the introduction of new equipment or the offering of new courses. Certain individuals are naturally attracted to computers and quickly pick up the skills and vocabulary necessary to make progress. But most people, whether because of lack of opportunity, low confidence, or the high level of most computer offerings, find it difficult to gain this experience and knowledge about the field."

In his talk at the Computer Faire, "Programming for Everyone: A Rationale and Some Teaching Strategies," William Wagner of Mt View, California, High School, addresses the problem of bringing computers to individuals who do not normally seek them out, and whose experience and opportunities are limited. First, the reasons for broadening the scope of computer education are presented. Then an argument is presented for the inclusion of elementary programming in any such non-technical introduction to computers. Finally, two experiences the author has had teaching such a course are described — in a high school programming class with no math prerequisite, and in an in-service course for non-technical adults offered through the local community college.

Conference Session

## Tracking the Microengine

Taking a critical look at the new Pascal Microengine will be Tom Pittman in his Computer Faire talk, "A User Looks at the Western Digital Pascal Microengine." Features to be examined are speed of execution, ease of operation, conformity to proposed Pascal and Floating Point standards, completeness of documentation, adequacy of support, any quirks in the system that happen to turn up, and of course, is it really worth the money?

Please, mention where you saw it, when you respond to an ad in the *Silicon Gulch Gazette*.

## 5th Faire Registration Lower than 4th Faire — Given Inflation

On-site registration for the 5th Computer Faire will be \$10.

(Some computer stores, and computer and electronics organizations may be offering discounts on preregistrations they are handling. Last year, the Computer Faire publicly stated a prereg price that was \$2 below the on-site fee. However, it turns out that this is prohibited by Federal Trade Commission regulations — it's price-fixing. So, this year, most stores are charging most or all of the full on-site fee. Don't you appreciate the protection thereby offered you by the FTC?)

Hold on, there! Last year, the reg fee for the 4th Faire was only \$9, on site. This year, it's \$10. How's that 'lower'?

True. But, the government has printed so much money in the past year, unbacked by anything of value (i.e. goods or services), that our inflation rate was around 13%. Since a \$9-to-\$10 increase is only 11%, the 5th Faire

## Speak at the 6th Faire

It's too late to submit a paper for presentation in the Conference Program of the 5th Faire, but you can get a good running start at the 6th Faire, to be held in San Francisco in the first part of April, 1981.

Request a 6th Faire Speaker's Kit: Computer Faire, 333 Swett Rd., Woodside, CA 94062, (415)851-7075.

Deadline for receipt of completed, camera-ready papers (for inclusion in the Faire's *Conference Proceedings*) will be December 1, 1980.

reg fee is 2% lower than it was last year in real cost. Or, at least, that's how we see it in our purchasing power (e.g., in the past year, our printing costs, alone, have increased almost 18%).

**"When you have eliminated the impossible, whatever remains, however improbable, must be the truth." — Sherlock Holmes**



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**SARGON II** (Spracklens) Winner of the recent European Microchess Tournament. "Buy this program when it becomes available — ... an evaluation routine that enabled it to beat the giants!...unequaled in the end game..." Personal Computing. #03403, TRS-80 Level II; #03404, Apple II; each \$29.95. #03409, Apple II Disk Version, \$34.95.

**SKETCHMODE** (Walton) Create computer graphics, modify them, save them, and read them from tape. #03203, TRS-80 Level II \$11.95.

**REVIVE** (Gilder) When a program is accidentally erased, REVIVE searches through memory and finds the information that enables it to restore the pointers that have been changed. Can be loaded at any time. #03604, Apple II, \$19.95.

**GRIDIRON: A Microfootball Game** (Microflair Associates) Be both offensive and defensive quarterbacks. Includes time-outs, penalties, a complete kicking game, and the two-point conversion used in college football. #03003, TRS-80 Level II, \$12.95.

**BIOCURVE** (Microflair Associates) Will chart your biorythms against another person's and suggest when you will be in a state of instability and therefore vulnerability. #03103, TRS-80 Level II, \$9.95.

**COMPLEX MATHEMATICS** (Gilder) 8 programs that give the user the ability to perform computations of complex numbers in BASIC rather than in FORTRAN. #01201, PET; #01203, TRS-80 Level II; #01204, Apple II; each \$14.95.

**ENGINEERING MATHEMATICS-1** (Gilder) Contains 8 programs useful to the engineer such as: Integration by Simpson's Rule, Quadratic Equations (covering all 3 root cases), etc. #01301, PET; #01303, TRS-80 Level II; #01304, Apple II; each \$14.95.

**GENERAL MATHEMATICS-1** (Gilder) Provides 15 programs useful to anyone who wishes to improve their math skills and accelerate their computations. #01101, PET; #01103, TRS-80 Level II; #01104, Apple II; each \$14.95.

**SONGS IN THE KEY OF APPLE** (Lopatin) Allows you to hear and see your favorite tunes, pre-programmed tunes, or music you create (up to 200 notes per musical piece). #03304, Apple II, \$10.95.

**New! MICROCOMPUTER AIDED DESIGN OF ACTIVE FILTERS** (Gilder) 8 programs that simplify the design of active filters and will calculate the component values needed for various bandpass, low pass, and notch type filters. #01401, PET; #01403, TRS-80 Level II; #01404, Apple II; each \$16.95.

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a next step

## Real-Time Clocks: Intimate Mainframe Companions

by Jim C. Warren, Jr.

*Note: From time to time this writer has proposed "realizable fantasies" — designs that are reasonable "next steps" to be incorporated in microcomputers in the immediate future. To the extent that any of these proposals have any patentable characteristic, this publication explicitly places them in the public domain (subject, of course, to any prior claims that may have already been filed). [This article was originally published in the Intelligent Machines Journal.]*

### BALLY

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It is time that micro box builders incorporated time-and-date clocks in their mainframes, just as they already include such 'options' as fan and a front-panel reset switch. Recognizing the nature and applications of microcomputers, as well as the economical character of such an addition, it is appropriate to incorporate such a feature in the set of microcomputers currently on the drawing boards, as well as providing it as a — relatively expensive — retrofit for existing machines.

This real-time clock should be either line driven or battery driven (as are perhaps a third of the clocks in the U.S. — they're called 'watches'). It should not turn off when the computer turns off — no more so than do any other properly functioning timepieces (in the immortal words of those World War II newsreel makers, "Time increments on!").

It should include a front-panel digital display, just like the \$29.95 digital clocks now on the market. At a minimum, this display should include hours, minutes, and seconds — that's six digits — and we may as well throw in the day of the month (two more digits) to obtain the holy octal. Of course, such a dandy display could have multiple uses for computer output, as well as temporal output. Assuming such time-sharing of the display, there should be a toggle, under both program and manual control, to switch back and forth between time display and more general program data display. The CPU, however, should not have any part in maintaining the clock data, except — perhaps — to be used for resetting the time and date. The clock

should run all by itself, with its normal time-keeping functions performed independently of the CPU and remainder of the system.

Programs, as well as front-panel voyeurs, should be able to read the time and date. The time resolution need be no finer than one second, or perhaps one-tenth of a second, at best. This is quite sufficient for the vast majority of timing applications of consumer or home computers (although certainly inadequate for many industrial and research applications). Note that this clock is for use in applications programming; not systems programming. Polling software, multi-tasking, and time-sharing systems, etc., should take their timing pulses from a faster, internal clock — different strokes for different folks.

#### SILICON CHIPPERS: TAKE NOTE

Sooner or later, some innovative semiconductor manufacturer is going to realize that they can make nominal modifications to those old digital watch chips, and produce an IC appropriate for the above task. (Or, perhaps this already exists. Surely, not all of those digital house clocks are still being built out of discrete components.) And, whichever semi-house does it first — providing an inexpensive, easy-to-interface, time-and-date chip — will certainly clean up in the massive micro market.

While they're making that chip, they may as well build a calendar — or at least a leap-year table — into the logic. Some of the digital-watch-makers have already done this, e.g., the Casio MQ-2. Ask the MQ-2 for the day of the week for 36-07-20 (year, month, day — top/down dating, of course) and it will tell you that it was a Monday.

#### WHY HAVE A CLOCK?

(Why have a watch? For that matter, why have a computer? Hmmm — let us avoid further discussion of such heresy.)

It results in one less power cord, and less occupied space in the computer room. If the clock's in the front of the computer, then it doesn't have to sit on top of the computer.

It allows time-dependent programs to calculate real (human) time easily. This is true whether the machine is being used to count seconds for an exotic, real-time Lunar Lander program (the pilot's gotta act fast), or to count time in a chess game, or to time the preparation of a multi-course meal. It is useful in many gaming environments, as well as in simulations (that's a fancy word for 'games').

Another use this writer feels should absolutely be built into every operating system is the 'time-stamping' of all files. Requiring that the computer user maintain records of when each file was created, updated, or accessed, is irritating and can lead to accidents. This is particularly true in most micro systems, in which the file name is limited to a few characters — often too few even to name the file adequately, much less to illustrate when it was created, or to indicate which version it is or when it was last used (Now let's see... did we send issue 3 to that special list, or not?).

It's time to do it, folks.

*"The Gann Initiative (a California, government-spending limitation ballot proposition) will force comprehensive cost-accounting on local and regional government agencies, and will probably be audited by the State Comptroller. Most local governments do not now have adequate cost accounting."*

— Tug Tamaru, D. P. Director, Anaheim, California

## Single-Board, Small-Business System, Available

The Model 80-20 is the newest in R2E's family of Z-80-based, small-business microcomputer systems. The single-board system includes a Z-80 CPU; 32K of RAM (64K optional); two single-side, double-density minifloppies (140K bytes of storage each); ASCII keyboard; parallel Centronics printer interface; cabinet and power supply. The system is packaged in a designer-style cabinet. Complementing the system is a 1024-character upper/lower case CRT display with large, easy-to-read characters, packaged in its own pedestal mounting.

Software for the 80-20 includes R2E's BAL Language (Business Oriented BASIC) with sequential, indexed sequential and random access file management, plus a macro assembler. Optional are FORTRAN, COBOL, PASCAL, APL, CBASIC and MBASIC (compiler and interpreter) — all operating under CP/M.

R2E of America is the U.S. sales and service operation of Realisations etudes electroniques, the French microcomputer manufacturer — now a subsidiary of Cii Honeywell Bull.

#### (Letter-)Quality Printers Make Closer Passes

Computer TEXTile, Inc. recently announced that it is now carrying the Sanders Media 12/7 printer. The Media 12/7 is a dot matrix printer that is capable of producing letter-quality print due to its use of the Infinite Matrix Principle which allows precise control of dot placement. The printer can make up to four passes on one line, offsetting dots by just a few mils, thereby creating letter-quality print.

Print speed varies from up to 216 CPS in one-pass "draft" fonts, to 50 CPS in a four-pass letter-quality font.

Multiple type faces are available in a variety of sizes and styles. The Media 12/7 features the ability to mix type faces on the same line. The Media 12/7 allows up to eleven type faces to be stored internally in ROM.

The basic Media 12/7, which includes two type fonts, sells for \$3900. Delivery is currently three to four weeks.

For further information, contact Computer TEXTile, Inc. 10960 Wilshire Blvd, 1504, Los Angeles CA 90024; 213-477-3067.

## EasyWriter™, the Professional System

Information Unlimited Software is dedicated to bringing you what we call "Computer Products of the Future." Today, we would like to introduce you to our new EasyWriter system and supporting members of the "EASYWRITER FAMILY OF PRODUCTS."

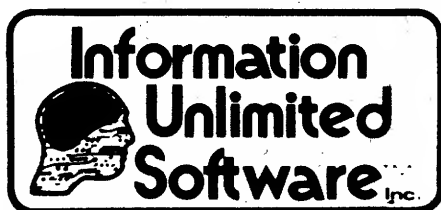
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- Character set can be user definable
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- Can be used with APPLE II communication interface board to act as self contained terminal for timesharing or other applications.

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\*SPECIFICATIONS SUBJECT TO CHANGE

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## Programming is Kidstuff for Some Primary Students

Computers are for kids — at least that's what the 30 students in a Talented and Academically Gifted program at the Woodland School in Spotswood, New Jersey believe.

These students in grades four through seven, have been writing their own programs covering everything from geography to graphics on a Radio Shack TRS-80 microcomputer for about a year now. They are part of a Talented and Academically Gifted (T. A. G.) program that obtained a TRS-80 computer in January of 1979 with a grant from the New Jersey Department of Education.

Now, at the request of teachers within the school, the students are creating and writing computer programs for use in the classroom. The programs are designed for grades one through seven in the areas of mathematics, social studies, science and language arts, and to prepare students for quizzes.

A computer program has its beginning with an idea. This idea is developed by the student until it becomes a set of instructions for the computer to follow. When the thought process is completed by the student and the idea has become a plan, the program is ready for the computer.

The program — a step-by-step set of instructions demanding decision-making and attention to detail — is entered into the computer via the keyboard. The students are instructed bi-weekly in computer programming in BASIC (the computer "language" of the TRS-80). For homework they write their own programs.

Because of their enthusiasm for the TRS-80 and the success they have had with it in the classroom, the students at Woodland School were filmed recently for the syndicated children's television program, *Kidsworld*, using the TRS-80.

*Kidsworld* is a children's program designed to provide youngsters an opportunity to report what is going on in their world. All ideas for the content of the program are submitted by the youngsters themselves on anything of interest or importance. The program with the Woodland School T. A. G. group is being televised in major cities across the nation.

### PROMOTES CREATIVE & LOGICAL THINKING

According to the T. A. G. facilitator, Laura Zatz, "The TRS-80 represents a challenge to my students because it is something new in learning and promotes creative and logical thinking. Even slow learners can benefit from using the TRS-80."

The Woodland School has plans for obtaining a more powerful version of the Radio Shack computer as soon as state funds are available. "The students are ready to forge ahead with the TRS-80 Level II. They have found that computer programming is a fun way to learn," says Laura.

The Radio Shack TRS-80 microcomputer is said to be the world's best-selling microcomputer. It is being used across the country in small businesses, schools and homes by all ages and for a variety of needs.

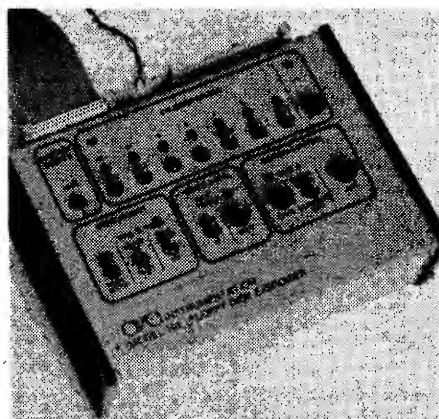
The TRS-80 is available at over 7,000 Radio Shack stores and dealers across the country, and in Canada. Headquarters for Radio Shack and Tandy Corporation (NYSE) is in Fort Worth, Texas.

"The CDC6000 was my first experience with noncooperating sequential processes." — Charles Bass

## Disk Exerciser To Jog Your Memory

Ava Instrumentation, Inc. recently announced the Model 103 Floppy Disk Exerciser, claimed to be the first, low-cost, lightweight portable exerciser designed exclusively for floppy disk drives. Both mini-floppy and standard 8" floppy disk drives, whether single or double-sided, single or double density, can be tested and aligned, whether in the field, the lab, or in incoming inspection.

Its claimed features are: head alignment simplification, index detector adjustment, track 0 adjustment and other normal maintenance procedures; small size (fits in briefcase); compatible with all makes of drives using the stan-



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☐ **Microcomputer Primer, (2nd Ed.)** by Waite and Pardee. Completely revised and broadened to reflect the latest advances in microprocessor technology from the new 8-bit microprocessors to solderless breadboards. An excellent starting point for all those interested in computers. Approximately 368 pages, No. 21653, Prepub price—\$10.76. Regular Price—\$11.95

### The "Programmers"

☐ **How to Program Microcomputers** by Barden. A popular, complete guide to assembly language programming of the Intel 8080, Motorola MC6800, and MOS Technology MCS 6502 Microprocessors. 256 pages, No. 21459, \$8.95

☐ **BASIC Programming Primer** by Waite and Pardee. Covers everything from getting organized to writing a game program. 240 pages, No. 21586, \$8.95

☐ **DEBUG: An 8080 Interpretive Debugger** by Titus and Titus. Covers program operation and how it's applied to program development and testing. 112 pages, No. 21536, \$4.95

☐ **6502 Software Design** by Scanlon. Tells how to program for the 6502 assembly language. Approximately 288 pages, No. 21656, \$10.50

☐ **8080/8085 Software Design, 2 volumes** by Titus, Larsen, & Titus. Volume 1 gives you an introduction to assembly language programming. 336 pages, No. 21541, \$9.50—Volume 2 is a unique, one-of-a-kind, computer science book for the design engineer. Written in Intel machine code. 352 pages, No. 21615, \$9.95. Two-volume set No. 21659, \$17.50

☐ **TEA: An 8080/8085 Co-Resident Editor-Assembler** by Titus. 256 pages, No. 21628, \$8.95

### The "Computer Technology" Leaders

☐ **The Z-80 Microcomputer Handbook** by Barden. Gives current and prospective users a one-stop source to Z-80 technology—hardware and software aspects and instrumentation problems. 304 pages, No. 21500, \$8.95

☐ **Using the 6800 Microprocessor** by Poe. Acquaints you with the hardware and software of the "6800" fun machine. 176 pages, No. 21512, \$6.95

☐ **Computer Graphics Primer** by Waite. Shows how to create your own graphic affects—from detailed drawings to moving figure animation. 184 pages, No. 21650, \$12.95

☐ **Microcomputers for Business Applications** by Barden. Explains the various types of microcomputers available, points out pitfalls to avoid, and defines computer-related terms, or "buzzwords" in easy-to-understand language. 256 pages, No. 21583, \$8.95.

### "Interfacing" Bookshelf

☐ **Microcomputer-Analog Converter Software & Hardware Interfacing** by Titus, Titus, Rony, and Larsen. Concepts and techniques of interfacing digital computers to analog devices. 288 pages, No. 21540, \$9.50

☐ **TRS-80 Interfacing** by Titus. 192 pages, No. 21633, \$8.95

☐ **Interfacing & Scientific Data Communications Experiments** by Rony, Larsen, Titus, & Titus. 160 pages, No. 21546, \$5.95

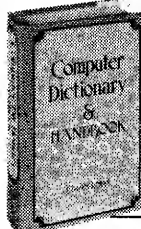
☐ **Microcomputer Interfacing With the 8255 PPI Chip** by Goldsborough. 224 pages, No. 21614, \$8.95

☐ **Z-80 Microprocessor Programming & Interfacing, 2 Volumes** by Nichols, Nichols, & Rony. 800 pages, No. 21611, \$21.95.

☐ **Introductory Experiments in Digital Electronics and 8080A Microcomputer Programming and Interfacing, 2 Volumes** by Rony, Larsen, and Titus. 912 pages, No. 21552, \$20.95

dard Shugart interface; two connectors are provided, one 34-pin for mini-floppy drives and one 50-pin for standard 8" floppy drives; no power supplies, the Model 103 uses power from the drive under test; interface cables for either the standard floppy or mini-floppy drives are optional, and may be purchased separately, as the user needs them, power cables are included with the interface cables; manual or alternate seek (with track 0) to any track address, address status LED's verify head positioning; drive status LED's verify current drive status; a pattern of all ones or zeroes can be written from index to index, for single or double density drives; and surface select for double-sided drives.

For information, contact: Ava Instrumentation, 96772 Manzanita Avenue, Ben Lomand CA 95005; 408-336-5048.



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☐ **IC Converter Cookbook** by Jung. 576 pages, No. 21527, \$13.95

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Note: Distributor, computer store and dealer inquiries are welcome

## FLEXing for Motorola

Technical Systems Consultants, Inc. announced recently that a version of their FLEX disk operating system is now available for Motorola 6800 EXORciser systems using EXORDisk II or III. Some of FLEX's features are dynamic filespace allocation, random and sequential file-accessing, batch job type program entry, user startup facility, automatic drive searching, English error messages, and over 20 commands for all normal disk operations. No hardware modifications are required for operation with the possible exception of memory addressing. The user simply boots FLEX

from a disk instead of MDOS. This makes the EXORciser compatible with most 6800 disk systems and allows it to run any FLEX-based software. Support software from Technical Systems Consultants includes, editor, assembler, debug package, text processor, two, fast BASIC interpreters, sort/merge, and more. FLEX for the EXORciser comes with a disk editor and assembler and a full set of manuals.

A 6809 version will be available soon. Contact: Technical Systems Consultants, Inc., Box 2570, West Lafayette IN 47906; (317) 463-2502.

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These programs are for the TRS-80, Model 1, Level 2, 32K +. Each program is self documenting, and is provided on three copies on cassette (easily loaded into disk). With detailed instruction manual. Money back guarantee.

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### Conference Session

## The Computer is In

"We are at the beginning of a decade which will see computers enter most phases of our daily lives. Inexpensive and easy-to-program 'appliance' computers are now available for small business and home use. There are many possibilities for their application in the medical office."

Dr Mark Spohr of Medsoft relates several applications in his talk, "The Computer in the Practice of Medicine: an Overview," at the Computer Faire.

The computer's skills, says Mark, "lie in the areas of data collection, storage and manipulation. It performs repetitious and tedious tasks without tiring. Computers offer physicians increased organization, efficiency, and productivity. Better management improves the quality of patient care, and reduces medical costs.

"Estimates of physician time spent on maintaining medical records range from 25% to 35%. Administrative functions occupy yet more time. These tasks are necessary. By performing them more efficiently, they require less time. This allows more time for patient care. Quality of patient care increases, while record keeping, administration and management costs decrease.

"The large data storage and manipulation capabilities of the computer can be used to our advantage in making decisions. Differential diagnosis routines, treatment protocols and drug interactions are potential areas of use. In addition, the interactive capabilities of the computer can make programmed learning a reality for patient and physician."

Quoted in the Context of OS360

"The structure of every large program reflects the structure of the organization that produced it."—Conway via Horning

## RUMORS . . .

continued from page 10

into the hands of a multitude of eager users.

### Apple Brew

This time, our Name Phraque of the Week award goes to the Little Rock Apple Addicts [17 Brookview, Little Rock AR 77209]. (Sounds a little punchy to us.)

The two runners up cheated by using their addresses:

There's the local electronics company with an address at, "2 Disk Drive". Then there's Microcomputer Systems, Inc., at 243 W. Chocolate Ave. in Hershey, PA 17033. (Ohh, how nutty!)

### Commodore Contender

Speaking of Apple, we hear that Commodore has decided to try competing with Apple [smile Chuck; I'm jokin']. Commodore, creator of the Pet, was the the originator of the consumer computer, being the first company to announce and ship a complete, turnkey system for less than \$700 (we state this in spite of some peoples' denial that it had a keyboard). However, apparently operating on the naive belief that consumer computers were the same as hand-held calculators (with which Commodore was eminently successful), they effectively stepped aside to allow Tandy to flood the market with the econo-TRS-80 (and mass media ads), and Apple — by doing a number of things right — to establish themselves as the clear-cut leader in top-o-the-line consumer computers.

Now, apparently Commodore has decided to try doing what Apple has been doing for some time. The reader may reasonably expect to see Commodore introducing Petfood such as color video & graphics, screens accomodating 80 character lines, real keyboards, and perhaps such goodies as touchscreens. Also, there is a company out of Los Altos that has built a Pet input device that will accept hand-printed characters (we've seen it; it works).

And, of course, we have noted that both Commodore and Radio Shack are exhibiting at the Computer Faire, while Apple is not. Who knows, perhaps Apple is planning on reciprocating Commodore's early-on politeness by now taking their turn at stepping aside in the marketplace. Such a gentlemanly industry we have here.

### Apple Sighder

But, lest a rumor-listener think that Apple is sitting on its laurels (would that be botanical miscegenation?), the gossip galley has cooked up the rumor that Apple is also about to intro some new machines.

We have heard the repeated word that Apple will shortly announce a Pascal machine. This will not be simply an Apple running an improved UCSD Pascal system — but a completely engineered, single-language Pascal system. (It could be comparable to the Pascal MicroEngine announced over a year ago by Western Digital — note: Tom Pittman will be giving a detailed owner's report on his finally-received WD MicroEngine, during the Faire).

If Apple does this, we suspect that they will target their marketing efforts for the college and university crowd, where Pascal is now firmly entrenched, as well as the small minority of high schools that have the faculty — both human and financial — to be interested in such dandy machines.

We also hear that Apple is going to seriously pursue the business market (along with virtually every other microcomputer system manufacturer in the world).

### IBM to Compete?

Then theres the word that IBM is  
please continue on page 18

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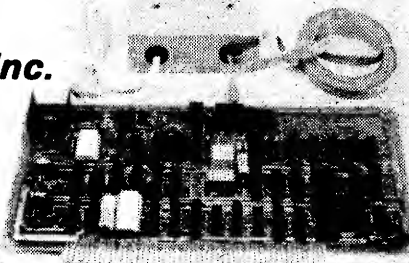
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## Conference Session

**Auntsy Has a Niece: Micro COBOL**

A compiler-interpreter for a subset of ANSI COBOL has been implemented on an 8080 or Z80 under the CP/M operating system. The implementation provides all nucleus level constructs and file options from ANSI COBOL. The language was implemented through a compiler and run-time package which can be executed in 20K bytes of main memory. A program consisting of 8K bytes of intermediate code can be supported on this size machine. The programs that make up the compiler and run-time package require 50K bytes of disk storage.

The NPS MICRO-COBOL compiler/interpreter is the result of thesis research at the Naval Postgraduate School that commenced in 1976 to demonstrate that it was feasible to implement a COBOL compiler on a microcomputer.

NPS MICRO-COBOL is the subject of a Computer Faire talk by Lieutenant Mark Moranville of the Naval Postgraduate School. Mark notes that, "The original design was based on HYPO-COBOL which is a Department of Navy approved subset of COBOL, designed to place minimal requirements on a system for compiler support. The definition of HYPO-COBOL was prompted by the need for a small-scale package that could exist in a microcomputer environment. The problem with using one of the existing COBOL-level specifications was that the level structure was oriented toward batch environments on systems of various sizes, permitting COBOL implementations of various degrees of sophistication. Many of the features supported by even the lowest levels of COBOL are not applicable to an interactive, single-user system such as CP/M. Additionally, the COBOL language being highly verbose makes high demands on systems with regard to parsing time and storage space. MICRO-COBOL was designed to reduce the size of the compiler, and to eliminate functional redundancy provided by multiple options in the language statements. It should be noted that MICRO-COBOL is a proper subset of ANSI COBOL."

## Conference Session

**Plain Programming: PILOTing Without A New Twist**

"What I call the 'Spaghetti Syndrome,' says Robert Watkins, "is the tendency of computer programs to consist of such twisted, convoluted threads of logic that they resemble the proverbial plate of spaghetti. If this is not true from the very start, then certainly as changes and enhancements become necessary, the program listing becomes less obvious and clear as to what is to be accomplished."

"Whether the program in question is one written in BASIC or a lesson written in PILOT, this occurs too frequently. The comparison with BASIC is intentional, since although BASIC and PILOT were developed for different reasons, they are both prone to 'Spaghetti Syndrome' programming."

Robert's Computer Faire talk, "Lesson Design in PILOT", focuses on the programming task using the CAI language PILOT. A method of lesson design that makes construction of PILOT lessons easier and less prone to programming error is presented. This method is part of a class in using PILOT that is taught at The Computer Merchant.

**Faires Scheduled thru '84**

West Coast Computer Faires have been scheduled through 1984 (we don't know what's going to happen, post-Orwell). All are planned for San Francisco's Civic Auditorium and Brooks Hall — the largest convention facility\* in northern California. The dates are:

1981 April 3-5  
1982 March 5-7  
1983 March 4-6  
1984 March 23-25

*Note:* We are attempting to move to later dates in '82 onward, however San Francisco's convention calendar is absolutely packed, and — to our amazement — we were doing well to get any options on the dates indicated.

\* — We did consider using other facilities, e.g., the Cow Palace or County Fairgrounds (great for cows, but with little or no conference facilities, and we strongly feel that the information exchange in the conference program is a major benefit of the Faires). San Jose Convention Center (delightful place, but too small), and the new Yerba Buena Center (so new it's never been built).

**Avoid Reg Lines: Prereg for the Faire**

A considerable number of bookstores and computer stores are carrying preregistration packets for the 5th West Coast Computer Faire. These include the door passes that allow immediate entry to the convention center for all three days of the Faire. By preregistering 'through participating dealers', you completely avoid the hassle and wasted time of waiting in the on-site registration lines.

Additionally, it is an excellent opportunity to visit your local dealer and see their latest offerings.

A list of prereg sites appears elsewhere in this issue.

*Note:* The Computer Faire does not handle preregistration by mail. However, a number of the prereg outlets do accept mail orders — if you order early enough (remember the speed of the U. S. Snail Service).

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## 5th Computer Faire Conference Program

**SUNDAY, March 16, 1980**

**FRIDAY, March 14, 1980**

### Unusual Microcomputer Applications

Energy Management for the Home with the Helion Micromanager  
*Jack Park*

Microcomputer-Assisted Amateur Astronomy  
*Sidney Levin*

Radio Wave Imaging System by Microcomputer  
*Yoshinao Aoki*

### Legal Aspects of Software Protection

Writing and Negotiating the Vendor's Software License Contract:  
Let's Make a Deal *Joseph R. Igelmund*

The Software Jungle: Legal Pitfalls  
*Raymond Karch*

### Micro Hardware & Interfacing

Home Bus Standards Association, What is It and What does It Mean?  
*Robert J. Richardson*

Microbotics: Enter the Table-Top Robot Arm  
*John W. Hill*

A Linear Scrolling CRT with Standard Parts  
*John P. Cater*

An Overview of Serial Communications in Microprocessor Systems  
*Frank L. Toth*

Association of Software Producers & Publishers [open meeting]

Microcomputer Industry Trade Association [open General Meeting]

### Business & Low-Cost Computing

Personal Computers in the Office: An Example  
*Clarence A. Ellis, Gary J. Nutt*

Four Programs for Use with Listed Option and Common  
Stock Investment Strategies *Alfred A. Adler*

The Microcomputer Market and Users in Japan  
*Seiichiro Yahagi*

Turnkey or Turkey?  
*Thomas P. Bun, Paul J. Terrell*

### Medical Computing

Softdoc - A Proposal for a Medical Software Network  
*James Gagne*

The Computer in the Practice of Medicine: An Overview  
*Mark H. Spohr*

### Computer Assistance for the Physically Impaired

Alphabetical Versus Graphotactic CRT Page Layout of Letters for a  
Versatile Portable Speech Prosthesis (VPSP) *Carol A. Simpson*

Microcomputer/Videodisc CAI Fulfilling a Promise for Handicapped Students  
*Ron Thorkildsen*

### Informational Graphics: Show Business & Know Business

Micro Graphics for Communicating Information Efficiently  
*Aaron Marcus*

Demonstrations & Explanations of Work in Progress  
*Visual Design Students - U. C. Berkeley*

Computer Retailers [open meeting]

Digital Group Users [open meeting]

**SATURDAY, March 15, 1980**

### Tutorials for the Novice

Beginners, Gather 'Round or Welcome to the Small Computer Revolution  
*Nicholas Rosa*

An Easy Approach to Operating Systems...For Example, CP/M (For Beginners)  
*Tony Bove*

Tutorial: Programming Data Files in Basic  
*Leroy Finkel, Jerald Brown*

Thoughts While Waiting for the Calvary to Rescue Me  
*Tony Severa*

### Artificial Intelligence & Micros

Microcomputers and the Design of Contelligent Systems  
*Dean Gengle*

Artificial Intelligence as Applied to Input and Output in the Office - or -  
Making Computers Read and Speak *Art Derfall*

### Computer Music

The Digital-to-Analog Converter Method of Real-Time Computer Music Synthesis  
*Hal Chamberlin*

The Performing Musician and the Personal Computer  
*R. J. Higgins, R. K. Goodall, R. Vedanayagam*

### Potpourri

Seeing Motion with the Mind's Eye  
*Sam Hersh, Al Ahumada*

Microcomputers in Africa: A Travelogue of the 1980 Eclipse  
*Carl Helmers*

Breaking into Writing for the Microcomputer Field  
*Sharon Rosa*

Is Electronic Technology Making Mankind an Endangered Species?  
(or: Carbon Chemistry Chauvinist? - You Bet!) *Don Perry Dunlap*

### Computer Games & Computer in Education

The Starship Simulation Project  
*David Fox, Annie Fox*

Computer Games in Education  
*David H. Ahl*

Solving the Shooting Stars Puzzle  
*Joel Shprentz*

### Low-Cost Computing for Education

How to Produce Random Access Videotapes, Videodiscs and Other  
Intelligent Wonders with Your Microcomputer *Robert V. Whitney*

Lesson Design in Pilot  
*Robert N. Watkins*

An Apple for the Teacher - A Graphic CAI Authoring System  
*Ted Perry*

CAI: A Different Way  
*Jeff Levinsky*

### Teaching About Computers & Programming

Programming for Everyone: A Rationale and Some Teaching Strategies  
*William J. Wagner*

Individualized Instruction in Computer Programming  
*Carl Grame, Dan O'Donnell*

You'd Like to Teach the World to What?  
A Guide to Writing Micro-Computer Courseware *Silas S. Warner*

### Personal Communications & Microcomputers

Telecommuting Via the Personal Computer  
*Jack M. Nilles*

"Information w/Cheese Please?" The Emerging Personal Computer  
National Information Utility Network *Ron Jacobson*

The Electronic Sandbox  
*Mark Cummings, Georjean Frank*

### Pascal & Pascal Machines

A User Looks at the Western Digital Pascal Microengine  
*Tom Pittman*

An Introduction to the Wonders of Pascal  
*James Gagne*

A New, Minimal-Cost Software Club for Users of UCSD Pascal  
*James Gagne*

### Significant Software for Inexpensive Machines

ANSI PL/I, Subset-G: A Commercial Implementation Under CP/M  
*Gary Kildall*

Animal - An Animation Language used in Creating  
Animated Scenes in Color on a Personal Computer *Jim Blum*

NPS Micro-Cobol  
*Mark S. Moranville*

A User-Guided Monitor ROM for Commodore CBM  
*John Clothier*

### Micro Software Engineering

Modular and Structured Programming on Small Systems  
(Including 6809 Assembly Language) *Terry F. Ritter*

Structured Flowcharts - A Hybrid Approach to Program Design  
*Gregg Williams*

A Case Study in Unstructured Software  
*Howard R. Hollander*

International Apple Corps [open meeting, all day]

Forth Interest Group [open meeting]

## APL for The Micros

Softronics APL for the 8080/8085/Z-80 microprocessors is now available. APL is an interactive, general-purpose programming language with powerful primitive functions. Softronics APL has most of the functions and operators of full APL, including n-dimensional inner and outer product, reduction, compression, general transpose, reversal, take, drop; execute and format; system functions and variables, system commands.

Softronics APL runs under the CP/M (registered trademark of Digital Research) operating system, residing in 30K bytes of memory (requires a 48K CP/M system). It is 'ready-to-go' in ASCII, using CP/M standard I/O. The interpreter runs in a variety of character-set configurations. In addition to the standard ASCII mnemonic representations, it supports typewriter and bit-pairing ASCII-APL character sets. It can run with user-supplied I/O drivers. The shared variable mechanism allows CP/M disk I/O.

Abrams' descriptor calculus and shared data storage are the advanced optimization techniques employed by the interpreter to save memory space and execution time. Values are stored internally in a variety of formats for efficient memory utilization.

Softronics APL come with an optional driver program for video display with programmable character generator.

For information, contact: Softronics, 36 Homestead Lane, Roosevelt NJ 08555.

## Becoming a Technical Writer

"Technical writing is one of the easiest fields to get into, and one of the hardest to stay in. Why easy to get into? Because there is a crying need in the microcomputer industry. Every week another company wakes up to its need for good, technical communicators. Why hard to stay in? Because it is demanding, exacting; because the results of your work will be out there for all the world to see (And for your boss to see.) If you're a dud, it will show. But if you are competent, conscientious, professional — then Silicon Gulch can be a technical writer's El Dorado," says Sharon Rosa.

In her talk, "Breaking into Writing for the Microcomputer Field," at the Computer Faire, Sharon covers the following: what does it take?, the writer's background, getting started, presentation, security versus freedom: advantages & disadvantages for captive employment and free-lancing, how much can one earn?, and marketing yourself.

## Special Retailers' Showing At Computer Faire

The Computer Faire exposition will be open for a special showing for retailers and exhibitor guests on Sunday morning, March 16, from 10 a.m. to noon. Computer and electronics distributors and retailers may obtain a "Retailer" ribbon to attach to their admission badge — allowing access to this special showing — by requesting it on letterhead stationery from the Computer Faire office.

Immediately following the Sunday morning retailer show, there will be an open meeting for computer retailers, chaired by Bob Moody (Alpha Information Systems, Palo Alto), president of Western Computer Dealers Association, in one of the conference halls of the Civic Auditorium.

### Conference Session

## Interactive Service Offerings

"Two-way CATV systems have been in existence in this country for at least fifteen years and yet, until recently, there have not been any strong, two-way, interactive service offerings. There have been satellites. First, government satellites, and then commercial satellites. Western Union, RCA, and AT&T operate satellite systems, but there are no two-way interactive programs. There are many new communication media, but they are generally inaccessible for general home or office use. Telephones, telex machines, acoustic

couplers, and data access arrangements are most commonly used. What is missing is a universal, home/office terminal device — a low-cost terminal device that would be as prevalent as the telephone, and would have the following capabilities:

"Accept alphabetic input and display, accept numeric input and display, color graphic input and display, motion video input and display, audio input and output, soft-copy storage (i.e., erasable storage such as tape), hard copy output, access to computing power, two-way communication capability (providing audio/video and data communications), ability to translate between audio, video and data."

In summarizing his talk ("The Electronic Sandbox"), to be given at the

Computer Faire, San Francisco State University Broadcast & Communication Arts professor Mark Cummings concludes:

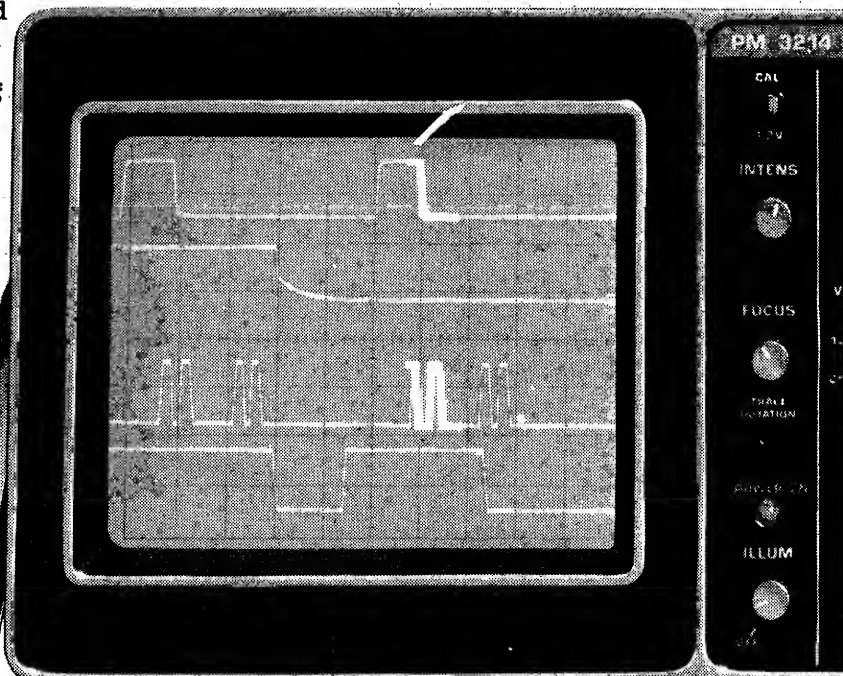
"We are entering a period of dynamic change based on technological advances in micro-electronics and communications technologies. The magnitude of these advances has to a large degree unvested the interests that have maintained the status quo, thus creating a plastic environment, an "Electronic Sandbox." This period will be relatively short-lived. Soon new interests will become vested and the patterns built in "sand" will become locked in "concrete." Now is the time for creative play; for experimentation with new alternatives; and for choosing those alternatives which will foster a more humanizing, more socializing and more democratic society."

## The only alternate timebase portable scope for under \$1500.

In the field or the lab, the PM3214 gives instant and unambiguous measurements comparable to more expensive scopes.

Solve your budget problems and your measurement problems with the PM3214 25 MHz/2mV dual trace oscilloscope. For only \$1485\*, see both the Main and Delayed Timebases at the same time — eliminating confusing back and forth switching to find delayed timebase position. The calibrated delayed timebase has a completely separate control section which includes trigger source selection. The bright display appears on a large 8 x 10cm screen for easy reading even under adverse lighting conditions.

Triggering facilities include AC, DC, TV and an Auto position that derives its trigger from the peak value of the incoming signal. Trigger selection is available from either channel, as well as from line or external sources. Check the illustration to see how logical grouping of controls



eliminates mistakes in the selection of the triggering source and mode.

The power supply of this lightweight (18.5 lbs.) portable is double insulated to eliminate ground loop problems and inaccurate measurements caused by hum and spurious signals.

No one gives you more for the price than Philips.



**For More Facts or a Convincing Hands-On Demonstration**, use our toll-free hot line number, 800-631-7172 in the continental U.S. In New Jersey, please call collect, (201) 529-3800. Or contact Philips Test & Measuring Instruments, Inc., 85 McKee Drive, Mahwah, New Jersey 07430.

\*U.S. Domestic Price Only.



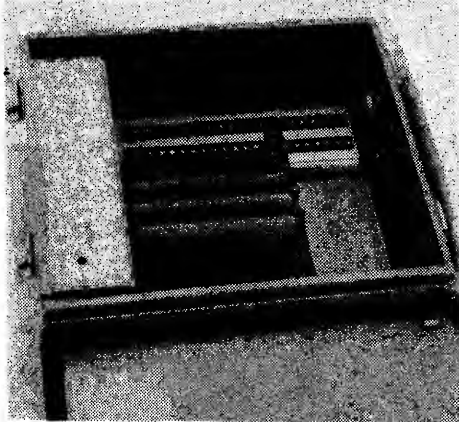
Test & Measuring Instruments

**PHILIPS**

## Breezy Approach for Gathering Wind Data

The Helion Micro-Logger Model 100, a microprocessor-controlled, field data acquisition system, has been installed at sites throughout the desert area in California. This large array of intelligent data systems is being used to collect and process wind energy information in support of solar-based, energy programs sponsored by the California Energy Commission.

Edwin Berry, the principal meteorologist conducting the wind survey said: "This is one of the largest field evaluation studies being conducted in support of wind energy. Data is being collected and pre-processed in real time over an area covering 35,000 square miles." Edwin is president of Atmospheric Research and Technology, Inc., the Sacramento-based consulting



Helion Micro-Logger Model 100

firm conducting the wind study for the Commission.

Wind speed and direction are monitored and processed directly to produce high resolution data sets which are stored hourly in computer memory. These data sets are then collected and sent to California State University at Chico for final computer processing and data presentation. All existing wind data for the area has been retrieved from other data archives and is being reformatted to correlate with new data as it is collected. Thus, with the use of the Micro-Logger, highly accurate prediction of wind energy is possible.

The Model 100 Micro-Logger is a low-cost computer designed for field resource studies. It can be configured to monitor and process both digital and analog signals from sensors used to measure temperatures, pressures, wind speed, solar insolation, rain fall, soil moisture, and other environmental data. Programming may be selected to either partially process incoming information, as in the case of the California desert wind study, or fully process incoming data and present the results directly on a printer or store those results on magnetic tape. "We selected the Helion Micro-Logger for its cost and performance advantages over other equipment available", Edwin said.

Helion is the Brownsville, CA, based firm that supplied the Micro-Loggers. The firm is engaged in solar energy consulting, and production of energy conservation computers. Information on Micro-Logger systems may be obtained from Helion, Inc., Box 445, Brownsville CA 95919.

## General Ledger Reports For Financial-Program Duty

Microcomputer Consultants recently introduced the MCC Business Software Series, a comprehensive group of programs developed for use on microcomputer systems in the business world.

This series has been developed to provide an efficient business environment by reducing the time-consuming and error-prone, manual processing of the basic accounting and billing functions with the accurate preparation of professional-quality, business documents.

All programs in the Business Software Series are designed for easy use by office personnel, and are accompanied by a detailed, step by step, operator's manual. All systems are menu driven and use a unique method of data entry that is highly interactive, easy to understand and checks for operator errors immediately. Unlike many other programs that are modified versions of programs that run on minicomputers, these programs are designed specifically for use in the microcomputer environment.

Systems available include general ledger, accounts receivable, accounts payable, invoicing, and inventory control, for use in retail and wholesale environments. The programs are designed for use under the CP/M operating system and require 48K RAM and a video display with an addressable cursor.

For further information, contact: Microcomputer Consultants, 231 E Street #9, Davis CA 95616; (916) 756-8104, and see their demonstration at booth 208 at the Computer Faire.

## RUMORS . . .

continued from page 14

dropping prices on some of their small systems and subsystems (e.g. disc drives) by as much as 33%. Why — another 40% or 50% and they may even begin to be price competitive with all us micro folk.

### Thinkertoys™

Propaganda posters seeking speakers for the last several Computer Faires™, included the phrase, "Tutorially Talk of Your Tantalizing Thinkertoys" . . . with nary a 'TM' trademark bug. When George Morrow saw this, he called and asked that the Faire put TM on Thinkertoys, 'cause he was filing for trademark registration of the word. He also allowed as how his attorney would repeat that request, presumably in stronger terms — which we requested (as yet, however, we haven't received even one 'party of the first part' . . . how disappointing).

(George is the innovative creator of the definitive S-100 motherboard which he calls the Wunderbus™, available from Morrow's Microstuff™. He is also highly active — vocally and technically — in several of the IEEE™'s microcomputer-related standards committees, and has just been elected to the Board of Directors of the Microcomputer Industry Trade Association.)

The reason that this is worthy of mention is the peculiar fact that George makes no pretense of being the first to dream up the name 'Thinkertoys'. In fact, a toy store near Stanford sez that it has been operating under the name, 'Thinkertoys' for 11 years (yes, the store carries micro-based gadgets; yes, George knows about it; and, yes, the owner is less than enchanted with George's registration venture).

George told us that he knows the name was used by others long before he decided to try trademarking it — but that he was the first one to put a 'TM' bug on it.

Now, we have no objection to Teletype™ or IBM™ or Frigidare™ being trademarked, for, in each case the original users were the registrants. However, we do question whether George's maneuver fits within the spirit of the trademark concept. (This has nothing whatsoever to do with whether it is legal, for it is well known that swallowing camels and fitting elephants through eyes of needles is standard fare for legal eagles — all too often the carnivores on the skeleton of societal structure.)

If the Trademark & Patent Office sees fit to honor George's application for registration — on the basis of first TM, ignoring first use — then we will consider filing for registration of the following (herewith first TMed): motherboard™, Pie™ (Apple™ is already taken), S-100™, microcomputer™, I™, and George™ Morrow™.

Why — if this really catches on, a whole new generation of intelligent typewriters and typesetters will have to replace current machines — ones that append TM to each word as it is typed. Truly™, George™ may™ create™ a™ booming™ new™ application™ for™ the™ microcomputers™.

Much of this column originally appeared in the *Intelligent Machines Journal* (recently renamed *InfoWorld* by its new owners), reprinted here with their kind permission.

We just received a call from IW's Editor, Tom Williams, mentioning that they had been contacted by George's attorney who was alleging that the article was libelous and demanding a retraction. (It was unclear whether he thought Thinkertoys was being libeled; George was being libeled; or legal eagles were

please continue on page 22

## 5TH WEST COAST COMPUTER FAIRE

### Conference Cassettes



**Adams**  
Convention Reporting

11 Galway / San Rafael, CA 94903 / (415) 472-0350

## New Data Entry Opens Up

The Software Store has announced the release of Entry, a universal data entry system. The Entry system is made up of two programs, Udegen and Entry. The interactive Udegen program generates the custom, key-to-disk modules, which are stored as data files and are used with the Entry program for actual data entry. The Udegen program can also be used to revise a previously defined data entry module. According to the company, an operator 'starting cold' at the terminal can usually define a custom module in less than five minutes.

The sequence of entering the data, the CRT headings and labels, and the number of records displayed, are defined in Udegen; validation procedures, such as check digits, tabled value tests, range tests, batch totals, and record counts, are provided to improve data quality. Using Udegen, field items can be duplicated or incremented to eliminate repetitive entries, and user-defined, fixed and variable length disk records can be supported and implemented.

The minimum equipment required is an 8080 or Z-80 mainframe, with 48K of memory, floppy or hard disk, CRT, and optional printer. The operating system required is CP/M with Microsoft MBasic or MITS/Pertec Disk Extended Basic.

The Entry system costs \$195, and is available either from a computer dealer, or from the Software Store, Ltd., 706 Chippewa Square, Marquette, MI 49855; (906) 228-7622.

## Conference Session

## Structured Flowcharts: A Hybrid Approach To Program Design

"Flowcharts lead to poor program design," says Gregg Williams. "Structured pseudocode (or, equivalently, a Pascal-like language) does not have the visual appeal of a graphic design technique."

The notation described in Gregg's Computer Faire talk, "Structured Flowcharts — A Hybrid Approach to Program Design," results in what he calls a 'structured flowchart', which attempts to combine the best features of flowcharts and structured pseudocode. When read from top to bottom, the structured flowchart describes the task to be performed; when read from left to right, it describes successive decompositions of a task into its corresponding subtasks. In this manner, the technique allows top-down structured design.

"The notation," says Gregg, "evolved from an idea presented by O. Ferstl in the Programming Languages subgroup magazine (SIGPLAN) of the ACM. It has evolved over many months of my daily use at Byte Magazine, and it is responsible for the existence of a 35-page COBOL program I wrote that was later expanded to 75 pages without any loss of program clarity or maintainability."

"Of course, this method (or any other secondary method) is of little use when the target language is Pascal or any Pascal-like language: there, the design effort produces the computer program directly. But there are still many people who must write in an unstructured language — the average hobbyist, in BASIC; the business programmer, in COBOL; other programmers, in PL/I, FORTRAN, and other languages. My talk assumes that you will be able to translate the constructs described into the target language, and I provide a reference article for the treatment of the translation process to BASIC."

### DISTRIBUTED DANISH DATA

All 14 of Denmark's counties, and 276 of its 277 cities utilize the data processing services of a single, integrated, national DP service system — Kommunedata. It employs approximately 1100 persons and has an annual budget of \$70 million.

## Carpool to the Faire with Retailers' Help

Computer Plus of Sunnyvale, (408)735-1199, is providing a super service to its customers: It is organizing a charter bus for south Bay residents wishing to attend the Faire in an energy-conserving, money-saving, sociable way.

A number of other computer and electronics retailers may provide a similar service to their customers: They can allocate a bulletin board area to those wishing to post Karpool Kards — 3"x5" cards from individuals in their area who are planning on attending the Faire. The cards should list name, departure address, home & work phones, and times & dates of expected attendance. If your local retailer has not yet started such a bulletin board, you might request that he or she do so, now.

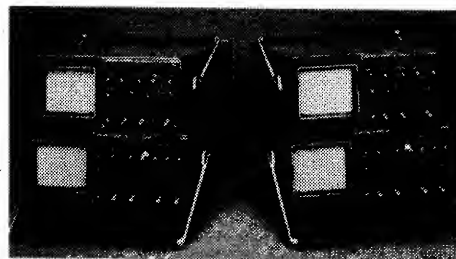
And, in fairness to the retailers, if they are going to assist their customers in this manner, it is only reasonable that you personally visit their site and check out their product lines — as well as checking out the Karpool Kards.

## The Scope of Current Measurement

Philips Test & Measuring Instruments recently announced the introduction of two, new, general purpose, 35 MHz oscilloscopes with digital and computer applications. The new portable oscilloscopes, the PM 3216 and the PM 3218, have a maximum sweep speed of 10 ns/div., and a trigger hold-off facility that eliminates double triggering on digital signals, making it unnecessary to use the timebase in the uncalibrated mode.

The announcement stated, "We believe that both the PM 3216 and the PM 3218 will carve out significant niches in the test and measuring market in that they are fulfilling a need for moderate-cost scopes which extend the

range of the widely accepted Philips 25 MHz instruments, and are suitable for an increasing range of digital and computer applications."



Both the PM 3216 and the PM 3218 can be operated from a wide range of power sources including 110, 127, 220 and 240V AC (+/- 10%) in the frequency range of 46-440 Hz, as well as 21-27V

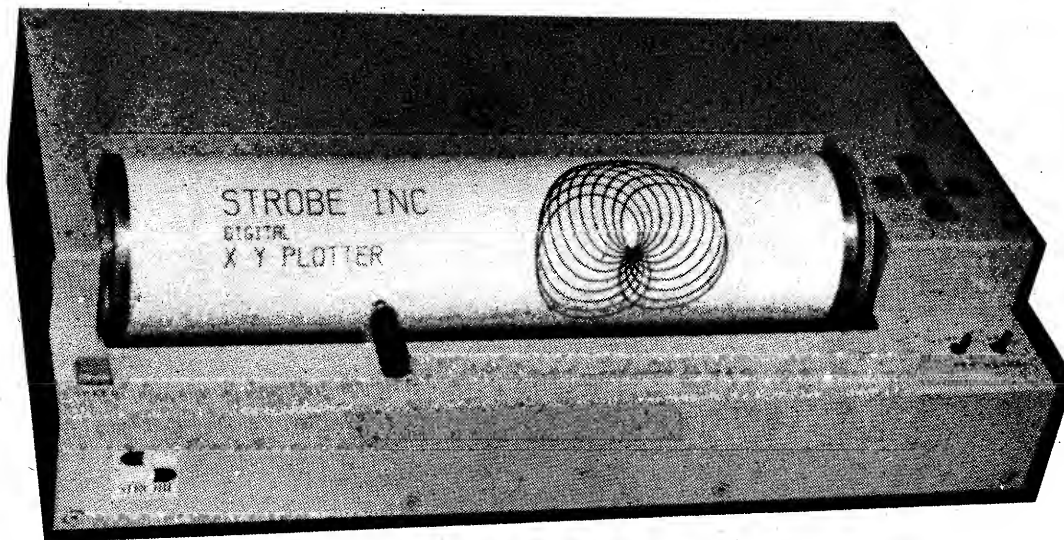
DC. An optional 24V battery power supply permits portable operation for field and other applications, with the power consumption only 30W.

Double insulation between the instrument and line allows both instruments to be operated without a ground connection, and eliminates the possibility of ground loop and hum problems.

The PM 3216 and PM 3218 are ergonomically designed for simple, convenient operation, and feature a large 8x10 cm screen. The instrument weighs only 8.4 kg (or approximately 18.5 lbs.).

Contact: Philips Test & Measuring Instruments, Inc., 85 McKee Drive, Mahwah NJ 07430; (201) 529-3800, a North American Philips manufacturing and marketing organization for N. V. Philips' Gloeilampenfabrieken.

## Finally, a High Quality, Low Cost GRAPHICS PLOTTER plus Interactive Coordinate Inputs



STROBE MODEL 100 . . . . . 680

*Lowest Cost in the Industry*

### Offering:

- high resolution graphics output (.004" stepsize)
- outstanding performance
- assembler coded drivers for high speed plotting

### Hardware Interfaces Available for:

TRS-80\*      APPLE II\*      S-100

### Software Package Includes:

- vector plotting
- variable size alphanumerics
- interactive coordinate inputs by user

Software available for TRS-80\* Basic, Microsoft\* Basic & Fortran, Applesoft\* Basic, Northstar\* Basic, etc.

STROBE, INC.      897 Independence Ave.      Mountain View, CA  
94062

See Us at the Faire  
Booths 510 & 512

\*TRS-80, Microsoft, Applesoft & Northstar are trademarks of Tandy Corp., Microsoft, Apple, and North Star Computers

## What's in a Name?

A normally unreliable source reports that before Fairchild Camera and Instrument's recent takeover by Schlumberger, the company was considering a merger with Honeywell Information Systems. Negotiators had major difficulties, however, in agreeing on a name for the new company. "Fairchild Camera & Information Systems" didn't quite hack it; neither did "Honeywell-Fairchild Information, Camera & Instruments." Negotiators finally compromised with "Fairwell Honeychild Corporation."

## Real-Time Real Estate

Redam-III, a new disk-based system for the PolyMorphic Systems 8813, is intended for use by brokers. The system comes on three disks, stores listings for homes and buildings, and performs 25 analysis routines, including RPA, a residential property analysis; CPA, a commercial property analysis; and CML, a client mail list. The packages may be purchased separately on diskette.

Contact Micro-Systems Design,  
1114 State Street, Santa Barbara,  
CA 93101; (805) 965-0385.

# Avoid Waiting in Lines Preregister for the Faire

Although the Computer Faire, itself, is not staffed to handle preregistration directly, it has arranged for a number of cooperating stores to carry prereg packets. They are listed below.

The stores prefer that you drop by to pick up your prereg — they'd like to see you and have you see what they have to offer ("Know your dealer.") However, should you be unable to do so, several of them are accepting mail orders... if you do the following:

1. Send your mail order *early*. (Remember, the U.S. Snail Service will be handling its delivery in both directions.)
2. Send full payment (phone the store for their reg fee; by FTC regulations, the Faire cannot tell them what to charge), and a stamped, self-addressed, legal-size envelope.

The stores accepting mail order preregistrations are marked in the following list with an asterisk.

<b>Data Domain Schaumburg *</b> 1612 E. Algonquin Rd Schaumburg IL 60195 (312)397-8700	<b>Computer Plus *</b> 1324 S. Mary Av Sunnyvale CA 94087 (408)735-1199	<b>MicroSun Computer Ctr</b> 2989 N. Main St Walnut Creek CA 94596 (415)933-6252
<b>Byte Shop SLC *</b> 3616 W 2100 S Salt Lake City UT 84120 (801)973-4446	<b>Computerland SF</b> 117 Fremont St San Francisco CA 94105 (415)546-1592	<b>Computerland Walnut Creek *</b> 1815 Ygnacio Valley Rd Walnut Creek CA 94598 (415)935-6502
<b>Byte Shop Reno *</b> 4104 Kietzke Ln Reno NV 89502 (702)826-8080	<b>Computer Connection *</b> 214 California St San Francisco CA 94111 (415)781-0200	<b>North Bay Computers *</b> 6526 Washington St Yountville (Napa) CA 94599 (707)944-8885
<b>Thorpe Data Systems</b> 22968 Victory Bl Woodland CA 91367 (213)703-6900	<b>Computerland The Castro *</b> 2272 Market St San Francisco CA 94114 (415)864-8080	<b>Silveri, Len</b> 1166 Midway Ct Novato CA 94947
<b>Byte Shop San Diego *</b> 8038 Clairmont Mesa Bl San Diego CA 92111 (714)565-8008	<b>A. I. D. S *</b> 301 Balboa St San Francisco CA 94118 (415)221-8500	<b>Marin Computer Ctr *</b> 70 Skyview Ter #301 San Rafael CA 94903 (415)472-2650
<b>Computerland *</b> 289 E. Highland San Bernadino CA 92404 (714)886-6838	<b>Coastal Computers *</b> 986 Monterey St San Luis Obispo CA 94301 (805)543-9310	<b>Affordable Computer Systems *</b> 3400 El Camino Real Santa Clara CA 95051 (408)249-4221
<b>MicroXchange</b> 2031 De La Vina Santa Barbara CA 93105 (805)682-1507	<b>Electrolabs</b> 930 Emerson Palo Alto CA 94301 (415)321-5601	<b>Alltronics</b> 15460 Union Av San Jose CA 95124 (408)371-3053
<b>Electric Brain</b> 3038 N. Cedar Av Fresno CA 93703 (209)227-8479	<b>Computerland El Cerrito *</b> 11074 San Pablo Av El Cerrito CA 94530 (415)233-5010	<b>Micro Byte Computer *</b> 2626 Union Av San Jose CA 95125 (408)377-4685
<b>Zackit Electronics *</b> 350 Del Monte Av Monterey CA 93940 (408)375-3144	<b>PC Computers</b> 10166 San Pablo Av El Cerrito CA 94530 (415)527-6657	<b>Computerland San Jose *</b> 1077 S. Saratoga-Sunnyvale Rd San Jose CA 95129 (408)253-8080
<b>Computerland Belmont</b> 1625-A El Camino Real Belmont CA 94002 (415)595-4232	<b>Byte Shop Fremont *</b> Glenmoor Shopping Ctr 38256G Glenmoor Dr Fremont CA 94536 (415)794-8000	<b>Santa Rosa Computer Ctr *</b> 604 7th St Santa Rosa CA 95404 (707)528-6480
<b>Kepler's Books &amp; Magazines *</b> 825 El Camino Real Menlo Park CA 94025 (415)324-4321	<b>Byte Shop Hayward</b> 1122 B. St Hayward CA 94541 (415)537-2981	<b>Byte Shop</b> 6041 Greenback Ln Citrus Heights CA 95610 (916)961-2983
<b>Digital Deli *</b> 80 W. El Camino Real Mtn View CA 94040 (415)961-2670	<b>Computerland Hayward *</b> 22634 Foothill Bl Hayward CA 94541 (415)538-8080	<b>Computer Store Corvallis *</b> 2015 NW Circle Bl Corvallis OR 97330 (503)754-0811
<b>Homebrew Computer Club</b> Box 626 Mtn View CA 94040 (415)967-6754	<b>Computerland Dublin *</b> 6743 Dublin Bl Dublin CA 94566 (415)828-8090	<b>Ye Olde Computer Shoppe Inc *</b> 1301 George Washington Wy Richland WA 99352 (509)946-3330

## Do Your Faire-Busing On Computer Plus' Bus

Computer Plus, a retail computer store in Sunnyvale, California, is again chartering buses to transport Faire-goers to and from San Francisco's Civic Center, site of the Fifth West Coast Computer Faire. The fee is \$8 for the door-to-door roundtrip. The buses will leave from Computer Plus, 1324 S. Mary Ave. (in the De Anza Square Shopping Center at Fremont & S. Mary).

The schedule follows:

Date	Leave Sunnyvale	Leave S. F.
March 14 (Friday)	9:00 a.m.	3:30 p.m.
March 15 (Saturday)	8:30 a.m.	3:30 p.m.
March 16 (Sunday)	11:00 a.m.	4:45 p.m.

Computer Plus requests payment in advance. For further information about the buses, pre-registrations to the Faire, Computer Faire Conference Proceedings, and other materials for the compleat computerist, please call Lucy at (408) 735-1199 between 11 a.m. and 7 p.m. on Tuesday through Friday, and between 11 a.m. and 6 p.m. on Saturday.

## Cataloging the TRS-80

Radio Shack has issued their TRS-80 Microcomputer Catalog RSC-3, "The Expanding World of TRS-80."

The 24-page, full-color catalog includes complete, up-to-date information on both Model I and Model II TRS-80 Microcomputer Systems.

Also listed in the new catalog are peripherals and accessories such as five line-printers, disk expansion units, a voice synthesizer, system desk, dust covers, carrying cases and software including more than 50 ready-to-run programs.

Detailed specifications shown in the new catalog include a TRS-80

## De-Bug Your Virus

VitaFacts™ is a new series of health interest microcomputer programs. The VitaFacts programs present, in layman's terms, medical information about aspects of people's lives and health needs. The first six programs are: *Heart Attacks; Birth Control; Your Blood Pressure; Teenage Drinking and Drugs; Growing Up; and Talking About Sex.*

Each package contains a professionally-prepared audio cassette, a computer cassette, and a booklet. These programs are designed to promote improved knowledge of medical situations, and better communication about health subjects between families and friends. Each program has been approved and endorsed by the College of Family Physicians of Canada.

Contact Richmond Software,  
471 Richmond Road, Ottawa,  
Ontario, Canada K2A 0G3.

Conference Session

## CAI Helps Uncap The Handicapped

Early in the formal study of Special Education, teachers and researchers recognized the importance and effectiveness of individualized instruction for handicapped learners. There is typically such a wide range of intellectual experience among handicapped students that group-based instruction is not effective. Many persons have long felt that the computer held a special promise in dealing with these individualized instruction needs. However, they also recognized the special communication problems associated with providing CAI to handicapped learners. This is particularly true with moderately, mentally retarded learners who have little or no reading skills.

Utah State University Exceptional Child Center administrator Ron Thorkildsen discusses the importance and need for individualized instruction for handicapped individuals, and how CAI can influence this need in his Computer Faire talk, "Microcomputer/Videodisc CAI: Fulfilling a Promise for Handicapped Students." Ron's talk is based on a research project being conducted at Utah State University's Exceptional Child Center. The major goal of the project is to develop a CAI system utilizing a microcomputer-controlled videodisc to present CAI to mentally handicapped non-readers. The project is in its second year, with one CAI program field-tested, and three more CAI programs under development.



System Selection Guide, comparison charts for Level I and Level II BASIC, a description of disk BASIC and TRSDOS operating systems for Model I, and the Level III BASIC and TRSDOS operating system for Model II.

## Apple Enabled Emulation

A new ROM-based device which enables an Apple II computer to emulate Tektronix 4010-series graphics terminals has just been introduced by ABW Corporation. TEKSIM, the "Tektronix Simulator," employs distributed processing in its programming approach and uses Apple's high resolution plotting capabilities. No modification to the host-resident program is required to display or input graphical data. Although the Apple has approximately 1/4 the resolution of a Tektronix terminal, a TEKSIM-Apple combination offers a substantial cost advantage, and exclusive features such as multi-colored displays, selective erase, and standard video output that lets any tv set function as a monitor.

Suggested retail price is \$795.

For further information, contact:  
ABW Corporation, Box M 1047, Ann Arbor MI 48106; 313-971-9364.

## Microelectronic Progress Is Self-Perpetuating

"Electronics will be the largest contributor to progress in all other industries during the decade of the eighties," a Rockwell International executive said recently.

Speaking to the Orange County Chapter of the IEEE (Institute of Electrical and Electronic Engineers), Mal Northrup, executive vice president, Electronic Devices Division, Rockwell International, added that "the only thing that's not optimum about the existing rate of progress is that we're not progressing fast enough."

Rebutting the alarm expressed by some semiconductor manufacturers that microelectronic progress in the last decade had out-distanced our capacity to use advanced devices, Northrup pointed out that progress in one area of technology contributes to advances in other disciplines. He said that advanced integrated circuits, microprocessors and other devices emerging from the research laboratories, make it economical to implement functions which engineers could only dream about a few years ago.

"A room full of electronics costing a million dollars twenty years ago, today fits on a single board and costs a few hundred dollars," he said.

"He noted that electronic equipment designers had ingeniously used microcomputers to devise word processing, text processing, automated photocomposition and electronic typewriters to vastly increase the amount of paper and information processed.

"However, information storage and retrieval have lagged," he said.

He said that the information explosion had resulted in some 60% of workers keeping track of data generated by computers on the activities of the 40% of workers now directly involved in manufacturing.

He challenged equipment engineers in Orange County, California, which has one of the largest concentrations of computer and computer-related manufacturers in the U. S., to direct their talents at controlling the information explosion.

He said the motivation was that new microelectronic devices in the 1980s would provide designers with the necessary low-cost hardware.

To support his contentions that progress must be speeded up in the U. S. semiconductor industry, Northrup said that 51 major U. S. companies now own R&D or full-production semiconductor facilities, 36 of which are fully active. But foreign firms now hold major equity positions in 19 U. S. semiconductor companies which for decades have been the world's leaders.

"We have identified more than \$1.7 billion being spent by foreign governments on nationalistic semi-

conductor development programs," Northrup said.

Emphasizing that new products must be driven by the real needs of markets, and not by research, Northrup said, "If we can combine microelectronic device advances with electronic system expertise addressing the real needs of industries, the 1980s will truly provide electronic progress which benefits mankind."

"But," he added, "we all have to get to work."

Rockwell International is a major, multi-industry company applying advanced technology to a wide range of products in its automotive, aerospace, electronics, and general industries businesses.

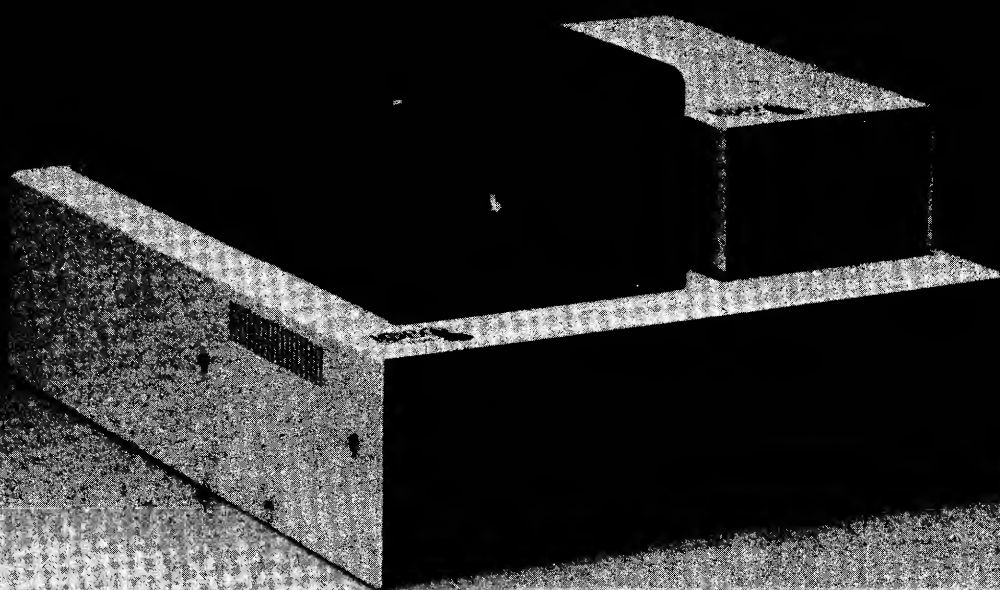
## Micro Entrepreneurs: On the Industry List?

- Want timely, accurate, inside information about the microcomputer industry and marketplace?
- Would you like to see the summaries of statistics gathered at the Computer Faires?
- Like to know the error rates found in 'bingo card' name lists furnished by various magazines?
- Want to be among the first to receive exhibitor information — and thereby best booth choices — for future Faires?

If you are a business person specializing in microcomputing — dealer, manufacturer, publisher, software producer, etc. — you can be placed on the industry list maintained by the Computer Faire. The Faire uses this list to distribute its newsletters and Exhibitors' Prospectus. As a service to the industry, it also furnishes that list upon request, without cost, to the several trade associations serving the microcomputing industry (e.g., the Microcomputer Industry Trade Association), for distribution of their communications.

To be placed on that list, simply send a request on your letterhead stationery, including your title, to: Computer Faire, 333 Swett Rd, Woodside CA 94062. Of course, there is no cost or obligation.

## NEW FROM LOBO:



### An Entire Family of Disk Drives for APPLE, TRS-80\*, and S-100 Computers

Only LOBO DRIVES offers you an entire family of fully-compatible disk drives to select from. Whatever computer you're using, APPLE, TRS-80, or S-100, you can add a LOBO drive now, with the peace-of-mind of knowing there's a whole family of drives available when you're ready to expand.

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"CAN YOU REALLY AFFORD TO PAY LESS?"

## The Lost Corral

Meeting someone during the Computer Faire? Arrange to rendezvous with them in the left, right, or center seating area of the balcony overlooking the main exhibit arena. It is a comfortable and uncrowded place in which to relax and wait 'n' watch.

Conference Session

## KYDE TYME Provides An Apple For the Teacher

The KYDE TYME Project in the San Juan Unified School District in Sacramento, California, and the CHIPS Project at California School for the Deaf in Berkeley, California, are funded to develop a computer-assisted instruction author language for the microcomputer. The language is to be easily usable by the "novice" teacher in CAI. The authoring system necessitates no programming expertise on the part of the teacher and literally walks the authoring teacher a step at a time through building a student curriculum, and the authoring system makes full use of the graphic capabilities of the Apple computer.

The "author language" is complete and running, and Ted Perry of the KYDE TYME Project will describe and demonstrate it at the Computer Faire. Included in the author language program are: teacher authoring program, student presentation program, graphics development program, graphics library program, and data management program.

"Whenever anyone says, 'theoretically,' they really mean, 'not really.'" — Dave Parnas

## Course Where? . . . Courseware!

"As a courseware developer," says Silas Warner, I have had many requests along these lines: 'I have written (or found) a great textbook in xyz. If I put that book on the computer, what will I have to do to avoid copyright problems?'

"To which my answer has always been, 'If you want to put a textbook on a computer, put it on top of the keyset, and tell the students to read it. It's cheaper that way, and the student can take the book home.'

"One of the worst things that a computer can do is display long passages from a book. It essentially wastes the power of the computer. There is no reason why a textbook can't be packaged as part of a computer-based course, and the computer assign 'homework' in the book."

Silas, in his Computer Faire talk, "You'd Like to Teach the World to WHAT?: A Guide to Writing Microcomputer Courseware," presents a guide for writing educational programs, testing them and making them available to students. His presentation covers: what is courseware, what the computer is not, what the computer is, what are you going to teach?, how are you going to teach?, how to ruin courseware, nice touches, programming your lesson, testing, and out into the world.

Conference Session

## Operator or Operatee?

"Using a computer should always be easier than NOT using a computer," says Tony Bove of Sybex, Inc. In his talk at the Computer Faire, he will describe methods of teaching an operating system to "naive users," and outline typical operations in a system using CP/M (and the latest MP/M) as models.

Tony says, "If you walked into a stereo showroom with your own cassette, you could easily manipulate any of the controls on the latest and most expensive cassette recorders. You should also be able to walk into a computer store and operate an operating system. You should know what to look for in a system, and know what kind of application programs would fit well with a particular operating system."

"During my talk, I will simply demonstrate teaching an operating system to ordinary people. If you are a total beginner to computers, you should be able to understand and even TEACH the fundamental operations of a system like CP/M."

"Computer science is the only discipline in which we view adding a new wing to a building as being maintenance." — Jim Horning

Please Clip, and Post

Conference Session

## Is Electronic Technology Making Humankind An Endangered Species?

"We in the 'intelligent machines' industry are unavoidably among the shapers of not only Tomorrow's world, but probably what will become of mankind itself," claims Entecon Corp. president Don Perry Dunlap.

"Perhaps," he continues, "that is important enough for us to pause a moment in our efforts at creating the means of achieving the future and contemplate what we really want the ultimate fruits of our labors to be."

In Don's talk at the Computer Faire, he will present a perspective and a few bases for formulating some choices that may become increasingly significant in guiding the directions of our work and innovations in the future.

Citing a quote from Robert Jastrow in Time Magazine ("The computer initiates life like an electronic monkey. As computers get more complex, the information gets better. Finally the line between the original and the copy becomes blurred. In another 15 years or so — we will see the computer as an emergent form of life. Human Evolution is a nearly finished chapter in the history of life — a new species will arise out of man. Only a carbon chemistry chauvinist would assume that the new species must be man's flesh and blood descendants, with brains housed in fragile shells of bone. The new kind of intelligent life is more likely to be made of silicon."), Don states, "It is my intention to challenge Dr Jastrow's contentions and put them in a broader perspective, not on the grounds of their possibility or even their so confidently prophesied inevitability — I contest them purely on the grounds of their desirability."

## RUMORS . . .

continued from page 18

being libeled. If it was the latter, we think that's for the birds. Anyway, everybody knows eagles can't pass bars.) Although Tom sez he plans no response, we would like to clarify our position:

We had no intention of demeaning George nor the Thinkertoys company. We think George is a delightful dude, excellent elektroniker, and magnificent manufacturer. We think he and Thinkertoys serve the micro community well, with a top-notch product.

As to the name, 'Thinkertoys', we thoroughly enjoy it . . . and have used it ever since we first heard Ted Nelson use it, years ago — long before George ever began offering a product under that name. We have no concern about his using the name. We simply question the appropriateness of an attempt to gain exclusive possession of the name through trademark, when others have been using it as a business name for over a decade and George knows it.

Also, since George asked us to do so, we wanted to offer a public statement that he had contacted us and made every reasonable effort to have us place his trademark bug on 'Thinkertoys' any time we used it.

And, since this column is written to entertain as well as to inform(?), it was phrased in our ludicrous, left-handed manner. But . . . intended to defame or libel? Hardly! (We can think of several people and companies who we would consider libeling, but George and TThinkertoys is definitely not one of them.)

As to libeling legal eagles — why, some of our best friends are birds. (Other of our friends are lawyers. And who knows, after this, perhaps we will have to find still more friends who are lawyers.)

# Don't Miss The WEST COAST COMPUTER FAIRE

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	Friday	Saturday	Sunday	
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COMPUTER FAIRE, 333 Swett Rd, Woodside CA 94062; (415)851-7075.

## FCC Provides For Wa(i)vers

The Federal Communications Commission has issued a ruling on the permissible radio frequency emissions from personal computers. In its ruling, the Commission has classified computers into two categories. Class A covers industrial, commercial, and business computers; Class B comprises computers that are used in a home or residential environment.

Under the ruling, Class B computers will have to receive type certification from the FCC before they can be sold. The ruling, Docket 20-780, dated October 11, 1979, will go into effect on November 19, 1979. According to the ruling, equipment manufactured after July 1, 1980 will have to comply with the emission standards to be sold legally. According to the FCC, "computing equipment manufactured prior to 1980 is not subject to the specific technical standards in Subpart J, but is subject to the noninterference requirement in FCC rule 15.3."

This means that no computer equipment may interfere with radio or TV service — a requirement that was already in effect. The Commission further states that, "There will be no prohibition against the sale and resale after July 1, 1980 of equipment manufactured prior to July 1, 1980, subject only to the non-

interference requirement of FCC Rule 15.3."

The Commission is being rather hard about granting exceptions to its ruling, but has provided for waivers of the requirement in some cases. Nevertheless, any equipment manufactured under the waiver must include the following notice:

This equipment is marketed pursuant to a waiver of FCC rules, part 15, subpart J. Operation of this computer in a residential area is likely to cause objectionable interference to radio and TV reception because it emits more radio frequency energy than the FCC rules allow. If interference occurs, the user will be required to take all steps necessary to correct the interference.

## A Soft Listing Isn't Hard to Find

A new mail-order catalogue devoted exclusively to educational software for personal computers is being published by Queue Company.

The catalogue will contain educational software listings from numerous publishers. Software listings will be organized by educational level and field, and by computer, and will be included for all popular personal computers, the company stated.

All software listed can be ordered directly from Queue.

Contact Monica Kantrowitz, President, Queue, 5 Chapel Hill Drive, Fairfield, CT 06432; (203) 372-6761.

## San Francisco Visitors' Bureau

The San Francisco Convention & Visitors' Bureau offers a variety of information to assist out-of-area visitors to 'The City.' The Bureau may be of particular assistance to those attending the 5th West Coast Computer Faire, to be held in San Francisco's Civic Auditorium & Brooks Hall, March 14-16.

Among other things, the Bureau offers guides to restaurants and 'night life,' and has a daily events 'hot line' — (415) 391-2000. For guidebooks and more information, call or write: San Francisco Convention & Visitors' Bureau, 1390 Market Street, San Francisco CA 94102; (415) 626-5500.

## Spare Loot for You (or for Your Organization)

If your computer club, professional association, school or company department — or your entrepreneurial self — wishes to handle Computer Faire preregistration, the Faire is willing to offer you a discount. Any person or organization that wishes to do so may purchase Faire prereg forms and door-pass badges in groups of 20 for \$7 each with a 50% return privilege. (At-the-door registration will be \$10.)

This means that you and your associates (10 or more; you can return the other 10 for a full refund) can (a.) attend for Faire for 30% lower cost than on-site registration, (b.) build your organization treasury by offering Faire reg at more than \$7 but less than the \$10 on-site fee, or (c.) become wealthy while offering purchasers the opportunity to avoid standing in the on-site registration lines at the Faire.

Orders for prereg packets — in multiples of 20 — may be placed by mail or phone. The packets will be shipped to you within two days of the order, via UPS. If payment accompanies the order, the Faire will pay the UPS charges. If you prefer, you may order C.O.D. and pay the nominal UPS shipping and COD charges. \$140/packet of 20.

Up to a 50% refund (i.e. up to \$70 for 10 unused preregs) will be available upon request, following the Faire. To claim this refund, the unused packets in their original condition must be returned to the Faire offices by April 17th (a month after the Faire). All refunds will be mailed on or before April 30th.

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to: Jim C. Warren, Jr., President  
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† DATACAST is the trade mark of Wireless Digital, Inc., and refers to both the occasional periodical that is now offered, and the digital broadcasting services and products that Wireless Digital plans to offer in the future. The periodical is offered at this time, throughout the U.S. and the world. The broadcasting services are expected to be available only in the U.S. for the next several years.

TRS-80, Pet, Apple, and PDP-11 are trade marks of Tandy, Commodore, Apple, and Digital Equipment Corp.

Conference Session

## Computer Games in Education

Fewer than 30% of the pioneers that set off from Independence, Missouri, ever made it to the west coast during the years 1840 to 1870.

Using the computer game, "Oregon Trail," players have the opportunity to re-create that six-month journey, and face some of the problems and decisions that were crucial to safe passage for the first pioneers. (There are attacks from wild animals and bandits; your wagon can get swamped, break a wheel or even have a fire; your oxen can get injured or wander off; in the mountains, heavy rains, snow and impassable trails are constant hazards; illness and injuries are always a threat; and provisions and supplies must be maintained throughout the journey.)

Dave Ahl, publisher of Creative Computing, will speak at the Computer Faire about the latest generation of computer games that educators are finding effective as teaching tools (in first grade through adult education) in such subject matter as: economics, industrial development, pollution, science, language arts, mathematics, geology, business, and medicine.

## TV or Not TV . . .

continued from page 1

operating costs in an era of increased inflationary pressures, will have a short term effect. But, long term indications are that we are also entering a period that holds great promise for exciting sales and profit potential.

I foresee another strong year in color tv which continues to be unrivaled as the value/price leader of any consumer products category. Coming off a good year in 1979, sales of color tv will benefit from an active replacement market and the increasing number of "second set" households. Some 80% of the 77 million tv households have color units, many of which are approaching the end of a life cycle that began in the late 1960s and early '70s. The energy situation is already causing consumers to reorder their priorities and I believe home entertainment products generally will benefit from this trend.

## VIDEO SYSTEMS

The new catchword for 1980 and beyond will be "video systems," as the television receiver becomes more of a video terminal which will accommodate a vast array of accessories. The opportunity to sell video systems will obviously be a profitable one for retailers.

In audio, a product that is some 29 years older than television, the radio, is enjoying a resurgence. The proliferation of new and specialized types of radios, including auto sound products, holds great promise for the future. In audio components, breakthroughs in technology and styling are being attained at a rapid pace. Digital recording and playback systems, new packaging of component systems, metal particle tape and new cassette and eight-track tape cartridge systems are providing added consumer convenience.

The decade of the '80s promises to be an exciting one for the consumer electronics industry and one that will test us in every area of expertise; from the retailer to the service technician, to the consumer affairs manager, to the laboratory engineer. To translate the ever-quicken pace of new technologies into consumer benefits and, in turn, retail sales, will be a constant marketing challenge. It's a challenge to which we look forward.

## Getting to First Base With the Data Base

Johnson Associates has announced the availability of a TRS-80-based information retrieval system for simple or complex search of a collection of reference material.

The program maintains a disk file of user-supplied information (titles), source (reference pointer), and attributes (subject matter), and carries out inquiry searches by attribute. A maximum of 36 attributes are allowed for any specific data base, and any single entry may have one to 36 attributes coded. The attributes need not be specified prior to data base entry since the system allows dynamic attribute definition as the data base develops.

New entries may be added at any time, and a file review mode allows old entries to be corrected, or their attributes to be updated. Search output may be directed to the screen, printer, or to another disk file. The program allows generation of a new data base (empty), with null attributes as a starting point for any specific application. During both search definition and new item entry, a display of all attributes currently assigned to the database is maintained, on screen, for easy reference.

The TRS-80 Information Retrieval program is available, on diskette, for \$20. Contact Johnson Associates, P. O. Box 1402, Redding, CA 96001.

### Conference Session

## Telecommuting: Busing at Home

In 1973, an interdisciplinary research team at the University of Southern California began a study of the technological feasibility and societal impacts of a concept called "telecommuting." This coined word refers to the use of telecommunications and computer technologies to serve as a partial or total substitute for the daily trip to work. At the time the study was performed, personal computers did not exist. The technology that they were concerned with at the time was generally that of mini computers and larger systems. The subsequent introduction of the concept of distributed processing and of personal computer technology, as well as the appearance of several other trends, such as continued threats of major reductions in the availability of petroleum in the U. S., make it appropriate to reexamine the issue of telecommuting in the light of contemporary conditions.

Jack Nilles, University of Southern California Interdisciplinary Programs' Director, makes such a reexamination in his talk, "Telecommuting via the Personal Computer", at the Computer Faire.

"Several major factors and trends in contemporary society are acting to continually increase the desirability of telecommuting for several types of workers," says Jack. "The fundamental issue concerns the relative advantages to the employer and the employee of telecommuting instead of the traditional way of getting to work. Unless there are clear advantages to both employer and employee, the general concept will not be successful. Secondly, if telecommuting becomes more widespread than it is today, there are some broad-scale societal impacts which must also be considered."

## Printer, with Justification, Characterized as Intelligent

The HY-Q 1000 (trademark), an "intelligent printer" that offers new possibilities for the use of personal computers for business applications, was recently announced by Xymec, a newly-formed manufacturer of microcomputer peripherals.

With its five built-in microprocessors, Xymec's HY-Q 1000 — a low-cost, letter-quality, daisy-wheel printer — eliminates the need for complex personal-computer software. Now microcomputer owners can plug any personal (or other) computer into a HY-Q 1000, which will automatically convert simple codes into instructions for right justification, proportional spacing, automatic tabbing, bold and underlined letters, automatic columns, automatic title centering, automatic decimal point location, and other commonly-used text formatting functions.

The HY-Q 1000 has many other advanced features, including "Quadra-Pitch" (trademark), (10, 12, or 15 characters per inch, or proportional spacing); up to 198 characters per line; 100 printable characters in five languages (English, Italian, Spanish, French, and German, available without changing the daisy wheel); and a choice of 21 different typestyles in five different colors. Another unique feature is "reverse printing" — white characters on a black background — which is useful for highlighting critical information on management reports, for example.

### ELECTRONIC TYPEWRITER, TOO

The HY-Q 1000 can also function as a highly versatile, electronic typewriter. The typewriter, made by Olivetti Corporation, also provides a 224-character, two-line memory (allowing a typist to correct any character in the last two lines in seconds); a 1024-character, non-volatile memory for often-used phrases, margins, and tabs; automatic, paper positioning; electronic margin reset; and a digital readout to show column position, and lines to end of page.

According to Shelly Howard, president of Xymec, "The HY-Q 1000 has



more features than any other printer, regardless of price. It allows any personal computer owner, for the first time, to have sophisticated, high-quality, text printout without the complex, expensive, and memory-consuming text editing software they've needed in the past. This opens up exciting, new, word processing and other business applications markets for dealers, OEMs, and systems houses."

Xymec also plans to offer an optional RS-232 serial port this Spring, so the HHY-Q 1000 will also function as a smart terminal.

Xymec is a subsidiary of Litronic Industries, a leading electronics sub-assembly manufacturing company. Xymec was formed on August 15, 1979, as a microcomputer peripherals company.

## Give 'Shooting Stars' Your Best Shot

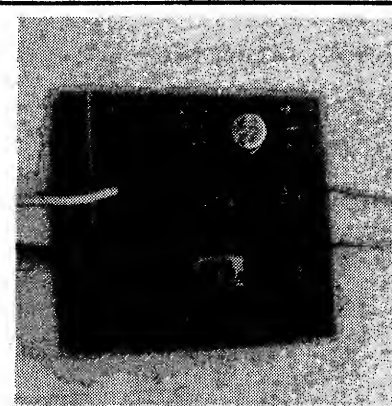
Shooting Stars is a puzzle that can be played on small computers. The shooting Stars puzzle is solved by transforming an initial pattern of stars into a final pattern of stars in the minimum number of moves. The puzzle is similar in structure to a network with the nodes representing patterns, and arcs representing moves. The solution to the shortest-path problem in the network is also the solution to the puzzle.

In his talk, "Solving the Shooting Stars Puzzle," at the Computer Faire, Joel Shprentz offers a FORTH program that solves the puzzle on a TRS-80.

In Joel's approach, "the algorithm used to find the shortest path in the Shooting Stars network is a modification of Dijkstra's algorithm for the shortest-path problem."

"Information is kept in two places during the solution process. Nodes awaiting processing are maintained in a queue. The best arc to follow from each node is kept in an array. The best arc is the one that lies on the shortest path to the final node. Initially, the final node is on the queue and all best arcs are set to 255 (an invalid arc number that flags an unprocessed node)."

"The shortest path is found by starting at the final node and tracing backward through the network, recording the best arc to take from each node. After initialization, a node is removed from the queue and all nine possible arcs (one for each grid position) ending at the node are traced backward [as described in his talk]. The process of removing a node from the queue and tracing the arcs backward is repeated until the queue is empty."



### Control the World!

Switch lights on and off for home security, computer-controlled, disco, light shows with our new, solid-state switch. Turn your printer on only when needed. The Switch can handle 720 watts (120 VAC 6 AMPS). Its output is TTL compatible (5V-2MA); isolation 1500VDC. The circuit board is 2" square on the one-channel kit, and 2"x8" on the 4-channel unit.

**1-Channel kit, \$9.95;**

**assm., \$12.50.**

**4-Channel kit, \$34.95;**

**assm., \$44.95.**

The Switch is available from:

John Bell Engineering

P. O. Box 338

Redwood City CA 94064.

## Business Accounting Software

for

### North Star Computers

includes:

**General Ledger**

**Accounts Receivable  
Payroll**

**Accounts Payable  
Inventory**

*All software is written with extensive input data verification features. Some of these features include checks for valid date, valid account numbers, and numerical data entry fields. Specialized features for each package are:*

#### General Ledger

Includes departmental accounting and complete six digit user assignable ledger accounts — true double bookkeeping entry system.

#### Accounts Receivable

Has 30, 60, and 90-day aging and selective interest charging on past due accounts. Customer account number is assigned by the program to avoid duplication of account numbers.

#### Accounts Payable

Invoice oriented data base with individual date due, partial payment of invoices and time payment capability. Vendor account numbers assigned by the program to avoid duplication of account numbers.

#### Payroll

Includes all eight Circular E tax tables and current, quarterly and year-to-date earnings summaries by employee as well as cost accounting reports.

#### Inventory

Includes cost and retail cost of items stored, YTD receipts, withdrawals and adjustments, and four different cost accounting reports.

#### Disbursements/Checking

Includes expense account breakdown of all accounts payable entries, payroll and individually printed checks. Other features are: 1) printing of accounts payable and payroll checks, and 2) bank reconciliation capability.

**THE BUSINESS ACCOUNTING SYSTEM** comes with a manual, 1,000 statements, 1,000 checks, two system software diskettes, a plastic, diskette case and 500 envelopes.

**COMPLETE BUSINESS SERVICES CORPORATION**

70 West Center Street

Logan, Utah 84321

Telephone: (801) 752-5713

See Us at the West Coast Computer Faire, Booth 1026

## 5th Computer Faire Exhibitors & Products

(a partial list, as of 80-02-07)

**3M Co.-Data Recording Products**  
Data recording supplies (media) & accessories for microcomputer sys

**6502 Program Exchange**  
6502 Software

**80-U.S. Journal**  
TRS-80 related computer publication

**A. I. D. S., Inc.**

**ABC Computers Inc**  
DEC-compatible hardware, dekchester & Minichester, versatile accounting packages

**Acorn Software Products, Inc.**

**Advanced Computer Products Inc**

**Adventure International**  
Software for microcomputers/T-shirts

**Allen Gelder Software**  
TRS-80 software

**Alltronics**

**Alpha Information Systems**

**Alpha Supply Company**  
Data Processing Supplies & Accessories

**Altos Computer Systems, Inc.**  
Digital computers

**American Word Processing**

**Apple Orchard**  
Educational software for Apple II

**Arkenstone, Inc.**  
Custom business systems & development software

## TRS-80 Bulletin Loses Two Characters

Recognizing the growing universality of the Radio Shack TRS-80 computer, TRS-80 Bulletin is now S-80 Bulletin.

The tabloid-newspaper, a monthly, carries product announcements, product reviews and other news and advertisements of interest to TRS-80 users. It is available free on an intermittent basis, or monthly (11 issues) for a \$2.50 donation to nonprofit Computer Information Exchange (CIE), Box 158, San Luis Rey CA 92068.

**Arrow Computer Supply**  
Memorex media, Avery labels D. P. ribbons, W. P. ribbons & paper...Everything your

**Artex Electronics, Inc.**  
Computer products & printed circuit boards

**Automated Simulations, Inc.**  
Fantasy games for home computers

**AVS/Audio-Video Systems**  
Custom furniture for TRS-80, custom programming

**Bakalinsky Designs & Suns**  
Design

**Basic Systems Corporation**  
Anadex printer, Houston Instrument recorder, Qantex tape drive

**John Bell**

**Benwill Publishing Corp**

**Bits, Inc.**  
Books for the small computer user "Books to erase the impossible"

**Byte Industries Inc**

**Byte and OnComputing**  
Computer magazine

**Byte Shop of Hayward**

**California Computer Systems**  
Peripherals for S-100, Apple, Pet & TRS-80

**Carl Dick, Distributor**  
Printers, Apple add ons, high volume distributor of IC's especially 4116, 2708 &

**Casheab**  
32 Channel Music Synthesizer

**Century Electronics**  
Computers, books, hobbyist items

**CMC Marketing Corp**

**CoEvolution Quarterly**  
Magazines, books, T-shirts, galaxy posters

**Commodore Business Machines Inc**  
CBM & Pet microcomputer systems

**Complete Business Services Corp**

**CompuMax Associates, Inc.**  
MicroLedger, MicroPay, MicroRec, MicroInv, MicroPers, MaxiLedger, MicroMax

**Compumech Electronics**  
Power supplies

**Computalker Consultants**  
Speech synthesizer

**Computer Connection**

**Computer Cookbook**  
Microcomputer reference guide in loose-leaf binder

**Computer Furniture & Accessories**  
Computer room furniture, enclosures & terminal stands

**Computer Headware**  
Whatsit: A self-indexing query system

**Computer Information Exchange**  
Peoples software, S-80 Computers, S-80 Bulletin

**Computer Plus**

**Computer Room**  
Belais master index, software for Pet, CB-2 sound amplifier, compute magazine

**Computer Stop**

**Computer Store Etc**  
Computer store franchise opportunity

**Martha Herman**  
T-Shirts, rubber stamps

**Computer TEXTile**  
Qume Sprint 5 Daisywheel Printers & accessories, reconditioned Daisywheel printe

**Computer/Law Journal**  
Computer/Law Journal

**ComputerMat**  
TRS-80 software directory, micro software directory

**Concord Computer Components**

**Corvus Systems, Inc.**  
Winchester disk drives for the Apple, TRS-80, S-100, LSI-11 and Altos Computers

**Creative Computing**  
Magazines, books, software, art prints, records, T-shirts, etc

**Cromemco, Inc.**  
Computer systems and peripherals

**CSUC/Time-Sharing Users Group**

**Custom Programming**  
Apple software, program development & consultation

**Cybernautics**  
Software specialists

**Data Sound**  
Microcomputer supplies

**Data Trans, Inc.**

**Data Wholesale**

**Datamation Magazine**

**Dataspeed Inc**

**Davilyn Corporation**  
Printer/terminal

**DMS**  
0-300 baud, crystal-controlled modem kit

**Delta Products**

**Design Enterprises of S. F.**  
Books

**Diablo Systems, Inc.**  
Information to be provided at future date

**Digital Design**

**Digital Research**  
CP/M, MAC, SID, TEX, DESPOOL

**Digital Video Systems**  
Digital video framebuffers, RGB monitors, lightpens, TV cameras, imaging & graph

**dillithium Press**  
Books & cassette tapes

**Disco-Tech**  
TRS-80 & Apple II software: utilities, engineering programs

**Eakins Associates, Inc.**

**Edu-Ware Services, Inc.**  
Entertainment, Simulation & Educational Software for Apple II

**Elcompco**  
TRS-80 peripherals

**Electrolabs**  
Computer equipment, peripherals, components, integrated circuits

**Electronic Systems Furniture Co**

**Electronic Systems**

**Encyclopaedia Britannica**  
30 vol. Encyclopaedia Britannica

**ESCON Products Inc**  
Selectric typewriter conversion systems

**Evolution 1**  
Video based education

**Ex-Cell-O Corp/Remex Div**  
Data Warehouse/Intelligent Drives

**Exatron**

**Expansion Products Company**  
CERTI-TAPE cassettes, certified cassette dup service & blank cassettes

**Forth Interest Group**  
Forth Implementation Guides

**F. S. I. Distributor's**  
Verbatim Magnitic Media

**Galaxy**  
Analysis 1 (ana1), stock market analysis program for Apple II

**Gimix, Inc.**  
Ghost System 68

**Graham-Dorian Software Systems**  
Business application software

**Grass Valley Computer Systems**  
G. W. Computers Ltd., business management software for Commodore

**H&E Computronics, Inc.**  
Software and magazine for the TRS-80

**Hayden Book Company, Inc.**  
Books & Tapes

**Heath Co.**  
Microcomputers, Peripherals & Software

**Helion, Inc.**

**Hewlett-Packard**  
HP-85 Personal Computer for Professionals

**Hobby World Electronics**  
Computer products & general electronics

**Houston Instrument**  
Hiplot, Hipad Digitizer

**Howard W. Sams**  
Computer & technical manual/book publisher

**IMSAI Computer Div**  
Integrated systems, disk peripherals, S100 boards

**InfoWorld**  
InforWorld (newspaper)

**Integrated Data Concepts**  
TRS-80 software

**Interface Age Magazine**  
Magazine

**International Apple Core**  
International Newsletter

**Ithaca Intersystems**  
DPS-1 Micro, boards, high density graphics, single board computer, etc

**J. Petrovich, Cabinetmaker**

**Jade Computer Products**  
Comprehensive line of microcomputer products

**Japan Micro Computer Club**  
Micro Computer News

**Jensen Tools, Inc.**  
Electronic tool kits, tool cases, hand tools

**JHM Marketing Assoc (Votrax)**  
Votrax Speech Synthesizer

# 5th West Coast COMPUTER FAIRE

**March 14, 15, 16, 1980**  
Friday Saturday Sunday  
9am-6pm 9am-6pm Noon-5pm

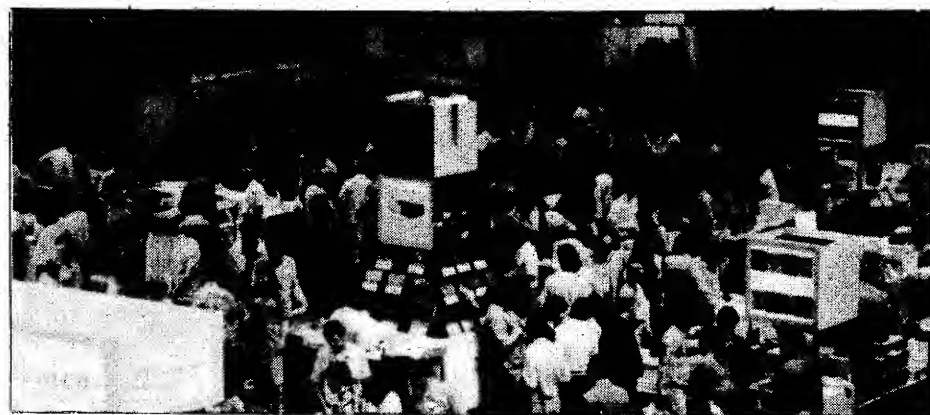
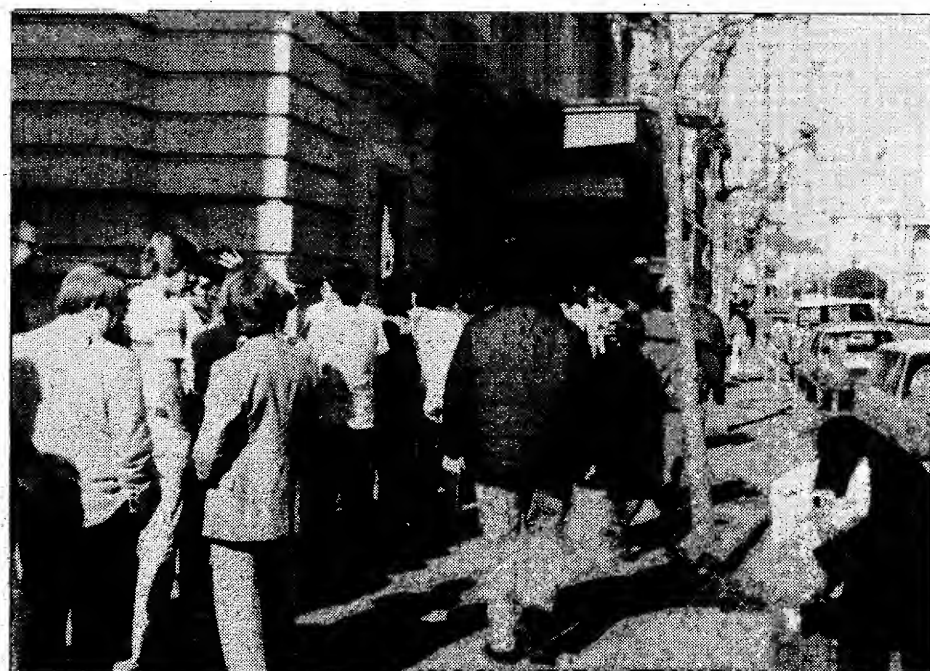
**San Francisco's Civic Auditorium & Brooks Hall**  
San Francisco Civic Center  
Lots of Parking — It's a Weekend

**Registration includes**  
**Conference Program & Exhibits for all 3 days**  
Pre-registration available at participating stores & clubs  
At-the-door registration: \$10

## — Want Ads —



SCENES FROM THE 4th WEST COAST COMPUTER FAIRE



Conference Session

### Wonders of Pascal

LIL1,2 Providing an introduction to Pascal, Datamed Research president James Gagne will elaborate on his recent *Kilobaud Microcomputing* article in his Computer Faire talk. His introduction will cover: structured programming, fundamental concepts, data types, input and output, standard functions, dynamic variables, and a brief description of UCSD Pascal.

"A large number of installed systems work by fiat. That is, they work by being declared to work." — Anatol Holt

### EMPLOYMENT OPPORTUNITY:

Experienced person capable of evaluating microcomputer software and hardware in a manner supporting vertical marketing efforts.

Interested applicants should, at the very minimum, have a knowledge of and experience in at least several of the more popular microprocessor devices (e.g. 8080, Z80, 6800, 6502, etc.). In addition, they should have proficiency in at least BASIC and assembly language.

This position involves evaluating off-the-shelf software and hardware plus packaging both to meet the needs of a large group of end-users in the marketplace. It is for the Computer Connection located in San Francisco's Financial District.

Computer Connection is a solid, growing, well-managed retail computer business with a full-time inside and outside sales staff.

Computer Connection offers excellent compensation and fringe benefit programs.

Interested applicants should send a personal letter to Steve Wells, Computer Connection, 214 California St., San Francisco, CA 94111.

Please include a full educational and employment resume together with salary requirements. All applicants will receive a personal reply. Please do not phone. Compensation will be commensurate with the successful applicant's qualifications and abilities.

Punched cards are homage to the Holy Hollerith (holey Hollerith?).

### An Exerciser For Slipped Disks

Micro Systems Associates, Inc., has recently introduced DiskTool (tm), a low-cost, software, floppy disk exerciser and repair package targeted for microcomputer retail stores and technically-minded individuals. DiskTool is currently available for Imsai IMDOS (tm) or CP/M (tm) systems using PerSci floppy disk drives. It enables a technician to perform all factory recommended adjustments on PerSci floppy disk drives including those made necessary when the main voice-coil, positioner lamp burns out.

An extra feature of the package is a foolproof adjustment procedure for the IMSAI Programmable Data Separator (PDS) board.

Some of the many DiskTool commands provide facilities for azimuth and track alignment, motor-speed adjustments, and head-load solenoid adjustments.

A demonstration disk and manual are available and versions for other microcomputer systems and floppy disk drives are being developed. For more info, contact: Micro-Systems Associates, Morgantown WV 26505; (304) 291-5180.

**WHOLESALE Prices to Dealers & Computer Club Members! Computers, Printers, Terminals, Modems, Boards, etc. (eg. TI #810 Printer: \$1551; CAT Modem: \$152). Patio Computer Sales Co., 5437 Laurel Canyon Blvd, #208, N. Hollywood CA 91607; 213-762-0020.**

**Software Closeout:** Dealer quitting business—Word Star reg \$495 now \$349! Similarly Tex Writer \$59, Qsort \$79, NAD \$69, Analyst reg \$250 now \$195! Also Serendipity or Structured Systems accounting software. Send check & \$3 shipping. Network, 3304 Geary, San Francisco CA 94118.

**Wanted:** In-house engineering technician and field service engineer. Good \$\$\$. Good benefits. Auto included. Come to work for a small, fast-growing company. Palo Alto area. Call Bob at (415)494-6221.

**FOR SALE:** 3 used Cromemco computers. 1-64K System III \$5500. 1-64K Z-2 \$5500. One-48K Z-2 \$5200. All have dual 8" PerSci drives, 3 serial, 2 parallel I/O. Call Jonathan or Henry, 415/524-5522.

**Industrial quality disc-based computer system.** DTC Microfile, 8080 processor with 48K memory, full Microsoft Disc Basic, floppy disc operating system, dual 8" PerSci floppy disc drives. Used for Computer Faire files for two years, until we outgrew it. Will sell for \$4800, F.O.B. Woodside, CA. Contact Computer Faire at (415)851-7075.

Six 16K Dynabyte memory boards, any or all at \$195 each. Jim at (415)851-7075.

Genuine, antique 8K PDP-8/I with quad DECTapes and papertape punch. Fully functional; in two 6' instrument racks on casters; runs OS/8, DIBOL, etc. — 15 years of systems and applications software available; includes manuals, DECTapes, schematics. \$3800, F.O.B. Sunnyvale, CA. Call Jim at (415)851-7664.

If you feel that you and your tax dollars have been treated fairly or unfairly by the UCSD Pascal Project, please send your comments to Jim Warren, 345 Swett Rd., Woodside CA 94062. If you were an industry or OEM user of UCSD Pascal, you may wish to copy your comments to the Microcomputer Industry Trade Association, c/o Jim Edlin, Secretary, 380 Mountain Home Rd., Woodside CA 94062.

**Wanted:** Used CDC Hawk, 10MB hard-disc drive with a 3M interface. Contact Wireless Digital at (415)851-7077.

For the first time in the U.S.: The Japan Microcomputer Club will exhibit their work and projects at the West Coast Computer Faire. Don't miss it.

Subscribe to the only fast-turnaround microcomputing news medium: *InfoWorld*, the biweekly newspaper for the micro community. \$18/26 issues throughout the U.S. InfoWorld, 530 Lytton, Palo Alto CA 94301. Visa and MasterCard accepted.

About 60 cancelled and uncanceled Czech stamps were taken in trade for a subscription to the old *Intelligent Machines Journal* (newly transformed into *InfoWorld*) — the subscriber couldn't get U.S. dollars out of Czechoslovakia. These include a number of astronaut/cosmonaut/space stamps, as well as the more usual horses and castles. \$35 for all of 'em. Jim, (415)-851-7075.

[Huh?] Used (=inexpensive) redwood water tanks wanted. Contact Jim at (415)851-7664. Also sought: redwood planking and solar heating equipment.

If the porkbarrelers would stop deflating dollars, we would stop increasing Computer Faire fees (we increased 11%; the economy inflated 13%; thus, the 5th Faire is 2% less expensive than the 4th Faire. Aren't we good folks?).

**Decreasing dollars!** Tired of rampant inflation? Let's tell our congresspeople to stop creating money underived from products or services.

(In fairness, we must also tell them that we are willing to — and wish to — accept less from the government. Please Uncle, I'd rather do it myself!)

## WANTED!

a used (=cheap)

Wangco

or

Persci

floppy disc

drive

call Jim

(415)851-7075

continued from page 26

**John Wiley & Sons, Inc.**  
Professional reference books

**Robert Lafore**  
Interactive fiction

**Leedex Corporation**  
Video monitors

**Lobo Drives**

**Macrotronics**  
Electra sketch, ham interfaces for TRS-80, PET, Apple, Sorcerer

**Malibu Design Group Inc**  
Malibu model 165 high speed dot matrix printer

**Marinchip Systems**

**Martha Herman**  
T-Shirts, rubber stamps

**Mauro Engineering**  
X-Y plotters, analog data systems

**Micro Matrix**

**Micro Technology Unlimited**

**Micro-Ap**  
Selector (software)

**MicroAge**

**Microbot**  
Home robotics

**Microbyte Computer Systems**  
Alpha Micro systems, Altos, TI, MBS

**Microcomputer Consultants**  
Business software

**Microcomputer OEM Systems**  
S-100 components, peripherals & systems

**Microcomputer Technology, Inc.**

**Microcomputerworld**  
TRS-80 add on memory, floppy drives

**MicroDaSys**  
Sys Z word processor & business sys, MD-690A  
6802/6809, S-100 Compatible CPU car

**Micromation Inc**  
Microcomputers, disk drives

**MicroNET**  
Remote personal computing service

**Micropolis Corporation**

**MicroPro International**  
Word-star word; super-sort

**Microsette Co.**  
Blank C-10 cassettes, cassette duplication services, data enhancer for TRS-80

**Microsoft**  
Level III Basic, TRS-80 Editor/Assembler-Plus, COBOL 3.1, Basic Compiler, Fortra

**Microsoft Consumer Products**  
Level III BASIC, TRS-80 Editor/Assembler-Plus, COBOL 3.0, BALIC Compiler, FORTRAN

**MicroSun Computer Center**  
MB800 Small business system

**Microtronix, Inc.**  
Microcomputers & peripherals

**MQI Computer Products**

**N N C Electronics**  
Main frames, power supplies, disks, enclosures

**NCE/CompuMart**  
PET APPLE Sorcerer Atari Computers & peripherals from various manufacturers

**North Star Computers, Inc.**

**HORIZON Micro-computers**

**Osborne/McGraw-Hill**  
Microcomputer books

**People's Computer Co.**  
Dr Dobbs Journal, recreational computing PCNET & ComputerTown USA!

**Personal Software, Inc.**  
Software for Apple, Pet, TRS-80, Atari

**Philips Test & Measuring Instr**  
Oscilloscopes

**Piiceon Inc**  
Business computer system

**Practical Applications**  
TRS-80 support, Apple, Pet & Osborn programs, floppy diskettes

**Programma International**  
Computer software & hardware

**Q. T. Computer Systems Inc**  
Computer systems, peripherals & components

**Quality Software**

**Quasar Data Products Inc**

**Quest Electronics**

**R-Factor Computer Concerns**  
Software for the Apple II

**Radio Shack**  
TRS-80

**RCA MicroComputer Products**  
Robotics Age Magazine

**Rothenberg Information Systems**  
Business systems and software

**Seal-O-Matic**  
Shipping & packaging supplies

**Sebree's Home Computers**  
Software & hardware products for Bally home computer

**Systems Formulate Corp. USA**  
PRIMO business printer, retail store

**Skyles Electric Works**  
Pet, computer memory, keyboard, toolkit, MacroTEA software dev sys

**Small Business Applications Inc**  
MAGIC WAND word processing software

**COMPUTE Magazine**  
COMPUTE Magazine

**Software Exchange**  
TRS-80 software & hardware

**Software Works, Inc.**  
Computer Software

**Southwestern Data Systems**  
Software for the Apple II microcomputer

**SSM Microcomputer Products**  
Boards for S-100 & Apple computers

**Stoneware**  
Applications software & games for Apple II, consulting & custom programming svcs

**Strategic Simulations Inc**  
Computer Bismarck (wargame for Apple II)

**Strobe, Inc.**  
Digital X-Y plotter

**Structured Systems Group**  
Software

**Sybex, Inc.**  
Books, self-study courses, video courses

**Synergistic Software**

**Talos Systems, Inc.**  
Digi-kit-izer (a graphic digitizer that is assembled by the user)

**Taranto & Associates**  
TRS-80 software (Small Business)

**Taurus Research, Inc.**  
Multi-user computer system

**Technical Systems Consultants**  
6800, 8080 & 6809 software

**TNW Corporation**  
Peripherals for Commodore PET

**Triac Computer Systems**  
Complete business systems

**TSI**  
Cromemco business systems, supplies & support

**Village Electronics**  
Apple Computers

**Vitek**

**Western Computer Dirs. Assn**

**Western Digital Corporation**

**Xymec**  
HY-Q 1000

**Number of exhibitors: 187**

## FIFTH

## COMPUTER FAIRE

March

14,  
Friday  
9am-6pm15,  
Saturday  
9am-6pm16,  
Sunday  
noon-5pm

1980

Request Form  
for  
Hotel Reservations

HOTEL	Single	Double (double or twin beds)	Suite 1 (parlor & 1 bdrm)	Suite 2 (parlor & 2 bdrms)	Reservation Notes
Jack Tar (HQ Hotel)	\$45-\$65	\$55-\$75	\$150-\$250	\$200-\$300	<p>If requested rate unavailable, next available will be assigned. Reservations must be received 30 days prior to arrival date in order to be confirmed. All reservations received thereafter will be confirmed on availability only. Rooms will be held until 6pm on day of arrival unless accompanied by deposit to cover first night's rental.</p> <p>Reservations will be held until 6pm of day of arrival.</p> <p>Reservation accepted if received by Feb. 28th accompanied by deposit to cover first night's rental.</p>
Holiday Inn (Civic Ctr)	\$38	\$48			
San Franciscan	\$40-\$52	\$48-\$60			

Rates are subject to an 8% hotel tax.

Please indicate accommodation choice, and  
call or mail **DIRECTLY** to the hotel.

HOTEL	TYPE OF ACCOMMODATION DESIRED
	number price
<input type="checkbox"/> Jack Tar: (415)776-8200 Van Ness & Geary, S. F., CA 94101	Single _____ \$ _____ Double _____ \$ _____
<input type="checkbox"/> Holiday Inn/Civic Ctr: (415)626-6103 50 - 8th St, (4425), S. F., CA 94103	Suite 1 _____ \$ _____ Suite 2 _____ \$ _____
<input type="checkbox"/> San Franciscan: (415)626-8000 1231 Market St, S. F., CA 94103	

Rooms will be occupied by [Please list those who will share rooms. List additional names on separate sheet. Be sure to show arrivals and departures.]:

NAME (please print)	CITY & STATE	ARRIVE (hour/date)	DEPART (hour/date)

For Hotel Use ONLY

NAME \_\_\_\_\_ DATE \_\_\_\_\_  
 TITLE \_\_\_\_\_  
 COMPANY \_\_\_\_\_ PHONE (\_\_\_\_) \_\_\_\_\_  
 ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

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# IF . . .

## You ACT by MARCH 20th!

To clean up our act . . . uh! . . . storerooms  
for the arrival of the  
Best of the Computer Faires, Volume V  
we are offering

## Two for the Price of One on each of our preceeding Proceedings

Buy one volume at full price;

Get a second volume for FREE!

(Or, buy Volume 5 at full price;

Get a previous volume at ½ price!)

This offer is good only on purchases at the 5th Faire and  
mail orders received at the Faire offices by March 20th.

Use the post-paid order form found elsewhere in this issue.  
plastic money — MasterCharge & Visacards — accepted

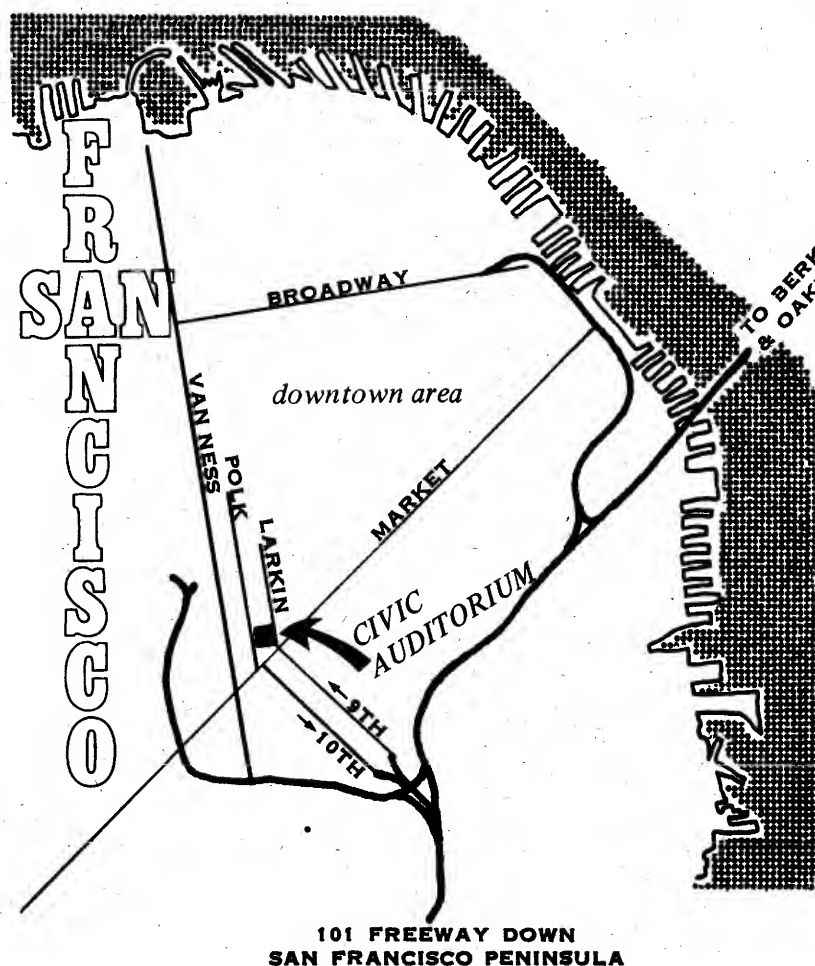
### Conference Session

## Cereal Communication Is More Than Snap, Crackle, & Pop

There are two basic modes of Serial Communication that take place in microprocessor systems: asynchronous (unclocked), and synchronous (clocked). Within any given communication network there exists a protocol or set of rules that ensure that data transmitted is received as it was sent.

"In a typical microprocessor system," says Frank Toth of American Microsystems, the data from the microprocessor bus must be converted from a parallel to a serial format through some type of interface device. In simple asynchronous systems, this device is usually an asynchronous receiver and transmitter (UART). In more complex systems using Binary Synchronous Communications (Bi-Sync), a Synchronous Communications Adapter (SCI or UCIA) is utilized to convert parallel microprocessor data to a serial bit stream with a clock. In extremely complex Bit Oriented Protocol (BOP) systems having multipoints of reception/transmission, a complex device such as an Advanced Data Link Controller (ADLC) is used to transfer data from a computer to a remote location."

Frank covers in detail, all these aspects in his presentation, "An Overview of Serial Communications in Microprocessor Systems," at the Computer Faire.



### THE BEST OF THE COMPUTER FAIRES, VOLUME V: Conference Proceedings of the Fifth West Coast Computer Faire

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## Bison Products Do Not Use Buffalo Chips

A double-sided, full-sized floppy disk subsystem for the Apple II is now available from Carl Dick, Distributor.

The system, known as Bison Products AP8x2, features a Remex drive housed in a disk cabinet. The disk controller resides in Apple's peripheral slot #7.

The system is compatible with DOS 3.2 and comes with software utilities to quickly copy between drives.



The systems will be available at the Computer Faire. The introductory price is expected to increase soon after the Faire to accommodate a national dealer program.

For additional information, contact: Carl Dick, Distributor, Box Q, Sherman Oaks CA 91423; (213) 349-2365.

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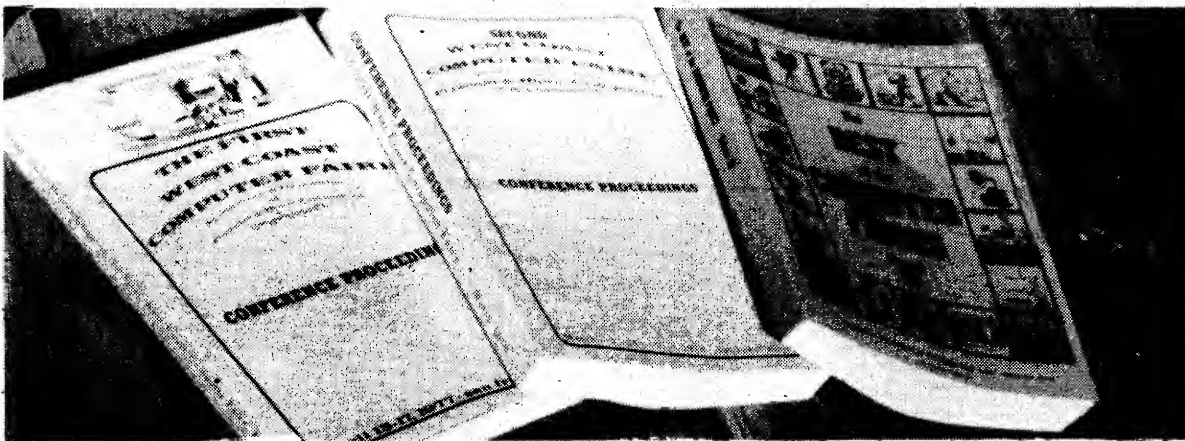
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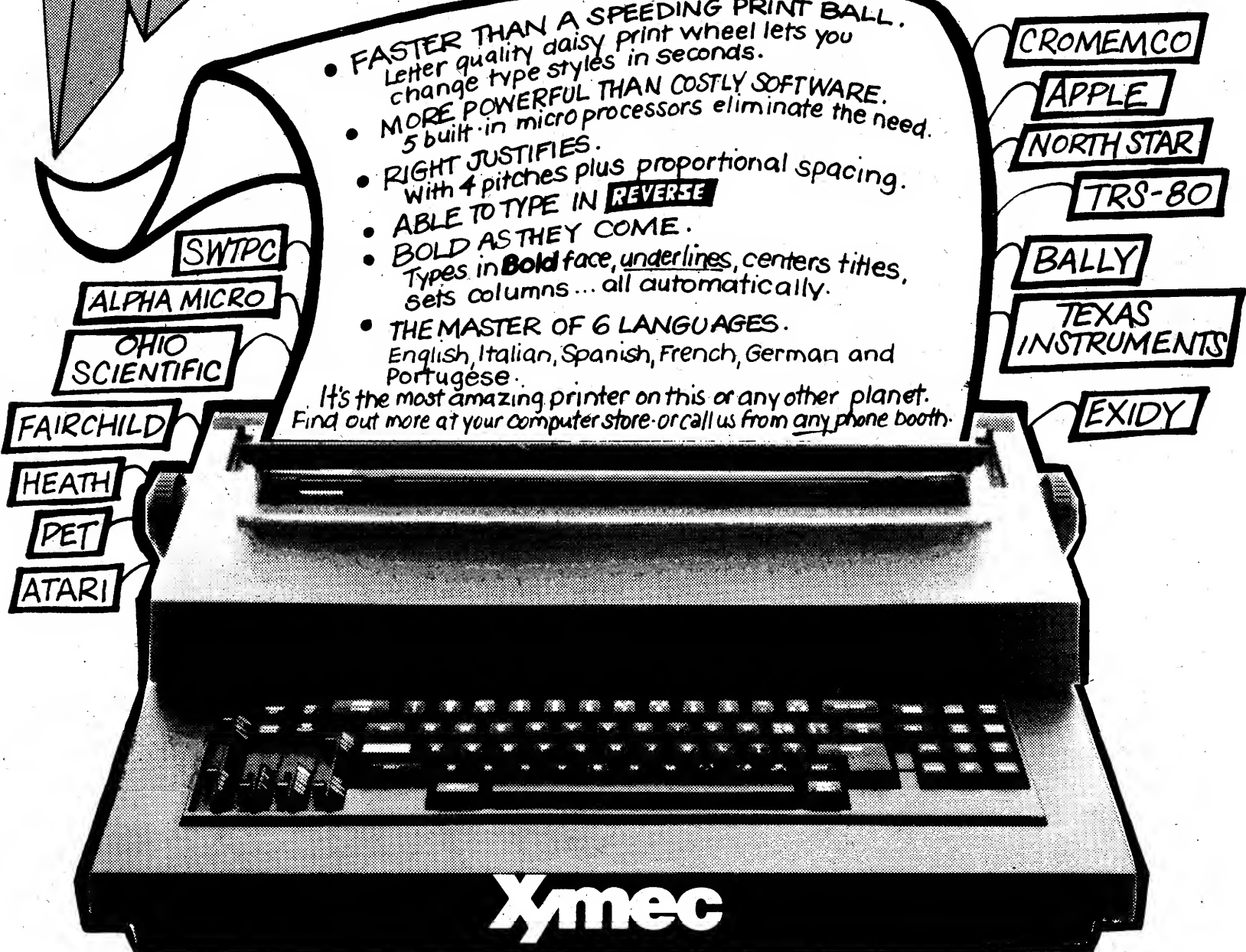
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